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#### Revision of the BLASTOBASIDÆ of North America.

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(PLATES I-IV.)

The Blastobasidæ as now understood and distinguished from the Cœcophoridæ form a well defined family of the Tineina. Although the term had been used by Mr. E. Meyrick\* as far back as 1894, and since that time by Lord Walsingham,† the honor of giving the first definition of the family under consideration belongs to Mr. A. Busck.‡

Its characters are as follows :

Labial palpi variable in development, often dimorphic in the sexes.

Maxillary palpi rudimentary.

Antennæ shorter than the forewings; excised above the basal joint in some (Pl. II, figs. 14, 17a) (*Blastobasis*, *Valentinia*, *Holocera* in part, *Euresia*), the excision being more or less filled by a scale tuft arising from the proximal end of the excision. The basal joint more or less widened into an eye cap, convex above, concave beneath with a glabrous space which covers the eye in repose; anterior margin of joint fringed with long, more or less stiff hairs—pecten (Pl. II, fig. 7b), or else with a conchiloidal shield of close set, long scales (Pl. I, fig. 7a) (*Calosima*, *Zenodochium*).

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\* Trans. Ent Soc., London, 1894, p. 22.

† Proc. U. S. Nat. Mus., Vol. XXXIII, p. 199, also Ent. Mo. Mag., Vol. XLV, p. 46.

‡ Proc. U. S. Nat. Mus., Vol. XXXV, p. 187.

Face smooth scaled, vertex often with coarsely appressed scales.

Forewings elongated, pointed, with twelve veins; cell long, veins 2 to 10 crowded at its end (Pl. I, figs. 1, 8; Pl. II, figs. 13a, 17c), the latter sometimes a little removed from the angle, veins 7 + 8 stemmed, 7 to costa before the apex, rarely to latter; 4 + 5 stemmed in Pigritiæ (except *Dryoperia*), free in Blastobases. Basal membrane thickened between the distal end of vein 11 and the costal margin—the *stigma* of Zeller. Vein 1b furcate at base.

Hindwings lanceolate to ovate, the costal margin generally retuse from or somewhat before the insertion of vein 8; 7 or 8 veins.

Posterior tibiæ roughened above with long, coarse hair.

The pattern of markings of the forewings consists in general of a patch on both margins at about one-third the wing length, frequently coalescing and forming a fascia, more or less distinct, a spot in the median space before the middle—first discal—and two spots at end of cell, second discals; more rarely there is a spot on the posterior margin of the cell beyond the middle of wing length; very rarely (*Calosima*) the wing is devoid of all markings.

The primary stages of a large number of these insects remain thus far unknown, especially is this the case of the subfamily Pigritiæ, of which we are entirely in the dark. The larvæ of some Blastobases are known to live in seed vessels, while others are predaceous upon Caocids, Aphids, and possibly other larvæ.

In his generic table of genera, published in 1907,\* Lord Walsingham enumerates eighteen genera, six of which are foreign to our fauna. Of the remaining twelve, *Endrosis* has properly been referred to the Cœcophoridæ. Of the other eleven, four (*Epigritia*, *Catacrypris*, *Cynotes*, *Hypatopa*, syn. *Hypatima*), being based on secondary sexual characters or the relation of vein 5 to 3 + 4 of hindwing, become invalid. Thus in his latest revision, published in February of the present year,\* we only find enumerated ten genera. Two

\* *Op. cit.*

of these—*Tecmerium*, *Auximobasis*—do not occur in our fauna.

*Hypatima* Hb., was founded on *Chelaria conscriptella* Hb., a Gelechid.

*Hypatopa* Wlsh., type *Ecophora inunctella* Zell., and *Cynotes* Wlsh., type *iceryælla* Riley, were established on vein 5 of hindwing, being feer from stem of 3 + 4. This character is very variable, not only in different specimens of the same species, but even in the wings of the same individual.

*Epigritia* Dietz, type *pallidotinctella* Dietz (*ochrocomella* Clem.), and *Catacrypsis* Wlsh., type *uncella* Wlsh., differ from *Pigritia* Clem., and *Holcocera* Clem., respectively, only in secondary sexual characters. *Calinita* Busck., type *sponsella* Busck., is a synonym of *Arotrura* Wlsh.—*Scythris* Hb.

*Dryope*, according to Mr. Karl R. Coolidge,\* preoccupied in Diptera and Crustacea, he proposes *Dryoperia* in its stead.

To these eight genera I have to add three new ones, making a total of eleven. They fall into two well defined and easily recognizable groups or subfamilies, as follows :

Labial palpi very small, often minute.....**Pigritiæ.**  
Labial palpi well developed, long, generally recurved...**Blastobases.**

#### Subfamily PIGRITIÆ.

Characterized as follows : Labial palpi short, moderate in both sexes (*Ploiophora*); very minute in the male, longer and more distinct in the female (*Pigritia*, *Pseudopigritia*), or else very minute in both sexes (*Dryoperia*). Antennæ not excised above the basal joint. Forewings with veins 4 + 5 stemmed, rarely (*Dryoperia*) separate. Hindwings with seven veins.

The four genera belonging here are distinguished as follows :

- |                                                 |                           |
|-------------------------------------------------|---------------------------|
| 1. Veins 4 + 5 of forewing stemmed.....         | 2.                        |
| Veins 4 + 5 of forewing free.....               | 4. <b>Dryoperia.</b>      |
| 2. Vein 9 of forewing free.....                 | 3.                        |
| Vein 9 of forewing and of vein 7.....           | 3. <b>Pseudopigritia.</b> |
| 3. Third joint of labial palpi depressed .....  | 1. <b>Ploiophora.</b>     |
| Third joint of labial palpi not depressed ..... | 2. <b>Pigritia.</b>       |

\* Ent. News, Vol. XX, p. 112.

For further consideration of the genera and species of this subfamily I refer the student to my paper entitled "On *Pigritia* Clem.,"\* but I wish to make here a correction. An examination of the type of *Pigritia ochrocomella* in the collection of the American Entomological Society at the Academy of Natural Sciences of Philadelphia, subsequent to the publication of my paper, proved this to be identical with my *pallidotinctella*, type of *Epigritia* Dietz, also that *heidemannella* is only a variety of *ochrocomella*. What had been recognized and described by me as *ochrocomella*—determined as such by Lord Walsingham—will hereafter be known as *erratella*. Of the twenty-nine species enumerated in Dr. Dyar's list, one will be reduced to a variety.

#### Subfamily BLASTOBASES.

Labial palpi always strongly developed, long, and generally recurved. Veins 4 + 5 of forewing free. Hindwings with eight, more rarely (*Blastobasis*, *Zenodochium*) with seven veins.

Dr. Dyar's list contains twenty-two species of this subfamily. Of these, *Blastobasis subtractella* Walker is a Gelechid; *Holcocera quisquiliella* Zell. I regard as a variety of *chalcfrontella* Clem.; *Hol. nubiliella* Zell. is identical with *Gelechia glandulella* Riley (type of *Valentinia* Wlsh.); *Holc. triangularisella* Ch. is *Hol. sciaphilella* Zell.; *Hol. fuscopulvella* Ch., no description known, leaving thus seventeen species and one variety; Lord Walsingham† in his paper described fourteen new species. Four of these, however (*Hypatopa episcia*, *conia*, *fasciata* and *orites*), belong to the Cœcophoridæ, and have been referred by Mr. A. Busck‡ to the genus *Borkeuhausia* Hüb. To the remaining ten have to be added two of Chambers' species brought to our notice by his lordship and omitted by Dr. Dyar in his list. This then brings the number of species heretofore described to twenty-nine and one variety. To these I have to add thirty-

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\* Trans. Am. Ent. Soc. XXVII, p. 100 *et seq.*

† *Op. cit.*, 1907.

‡ Proc. U. S. Nat. Mus., Vol. XXXV, p. 204.



seven species and ten varieties, making a total of sixty-six species and eleven varieties distributed among seven genera.

The latter are distinguished as follows :

- |                                                      |                        |
|------------------------------------------------------|------------------------|
| 1. Hindwings with seven veins.....                   | 2.                     |
| Hindwings with eight veins.....                      | 3.                     |
| 2. Basal joint of antennæ with pecten.....           | 1. <b>Blastobasis.</b> |
| Basal joint of antennæ with conchiloidal shield..... | 2. <b>Zenodochium.</b> |
| 3. Veins 3 + 4 of hindwing free .....                | 4.                     |
| Veins 3 + 4 of hindwing stemmed.....                 | 3. <b>Valentinia.</b>  |
| 4. Vein 4 of hindwing from before angle of cell..... | 4. <b>Euresia.</b>     |
| Veins 3 + 4 of hindwing from angle of cell.....      | 5.                     |
| 5. Basal joint of antennæ with pecten .....          | 6.                     |
| Basal joint of antennæ with conchiloidal shield..... | 5. <b>Calosima.</b>    |
| 6. Forewings without ridge of raised scales.....     | 6. <b>Holcocera.</b>   |
| Forewings with such a ridge .....                    | 7. <b>Eubolepia.</b>   |

### BLASTOBASIS Zell.

Type *phycidella* Zell.

Tongue of moderate length, scaly at base. Labial palpi long, recurved, generally a little shorter and stouter in the male than in the female. Basal joint of antennæ broad, convex, with well-marked pecten; shaft excised above the base in the male with scale tuft in the excision; shortly ciliate and finely denticulate beneath. Forewings more or less elongate, pointed; twelve veins, 7 + 8 stemmed, 7 to costa, remaining veins free. Hindwings with seven veins, 4 absent, 3 + 5 connate or stemmed. Hind tibiæ with brush of setaceous hairs above.

The only character which distinguishes this genus from the other genera with long labial palpi are the hindwings with seven veins only, agreeing in this with *Zenodochium* and from which it differs by the pecten of the basal joint of the antennæ.

*Blastobasis citricolella* Ch. and *coccivorella* Ch. belong to *Zenodochium* Wlsh., *Blastobasis umbiliella* Zell., *glandulella* Riley, is a *Valentinia*. *Blastobasis subtractella* Walker, is a Gelechid, *Blastobasis sciaphilella* Zell., *fractilinea* Zell., *quisquiliella* Zell., *livorella* Zell., and *fluxella* (?) Zell., belong to *Holcocera*; *Blastobasis aufugella* Zell., to *Pigritia* Clem.

The seven species and two varieties may be distinguished as follows :

- |                                                          |                                 |
|----------------------------------------------------------|---------------------------------|
| 1. Forewings without fascia.....                         | 2.                              |
| Forewings with fascia more or less distinct .....        | 5.                              |
| 2. Unicolorous, pale yellowish-brown .....               | 7. <b>vilella</b> .             |
| Not yellowish-brown.....                                 | 3.                              |
| 3. Pale grayish-fuscous.....                             | 4. var. <b>simpliciella</b> .   |
| Dark fuscous-brown .....                                 | 4.                              |
| 4. Basal two-fifths a shade paler.....                   | 4. var. <b>fuscopurplella</b> . |
| Basal two-fifths not paler.....                          | 1. <b>guilandinae</b> .         |
| 5. Fascia straight or slightly curved.....               | 6.                              |
| Fascia angulated.....                                    | 7.                              |
| 6. With median costal patch.....                         | 2. <b>hulstella</b> .           |
| Without such a patch.....                                | 6. <b>distinctella</b> .        |
| 7. Ochreous-fuscous, angle of fascia not very acute..... | 3. <b>yuccaeolella</b> .        |
| Grayish-fuscous, angle very acute .....                  | 8.                              |
| 8. Discal spot within the fascia.....                    | 5. <b>sagitella</b> .           |
| Discal spot beyond the fascia .....                      | 4. <b>plummerella</b> .         |

1. **B. guilandinae** Busck.

Mr. Busck describes this species as follows :

“ Antennæ dark fuscous, basal joint yellowish ; in the male strongly notched beyond first joint, with pecten on this joint ; shortly ciliated in its entire length ; in female simple, basal joint with pecten. Labial palpi smooth, curved, slender, dark fuscous ; tip somewhat lighter. Tongue stout, scaled at base, coiled at the end. Head and thorax yellowish fuscous ; forewings dark fuscous with a somewhat lighter shade before apex and along costa. A small deep black spot on middle of cell, two similar black spots at end of cell, one above the other ; below these an indistinct blackish spot and similar indistinct blackish spots along the apical edge. Cilia yellowish fuscous. Hindwings shining, yellowish fuscous. Abdomen shining, dark fuscous ; anal tuft yellow ; underside whitish, speckled with dark fuscous. Legs yellowish with fuscous shadings on the outside ; hairs above posterior tibiæ ashy yellow.” Alar expanse 14 mm.

Bred from *Guilandina handucella*, collected by Dr. Dyar at Palm Beach, Florida, March 5, 1900.

I have seen the type specimens in the Nat. Mus. Coll. There is some resemblance to *Holcocera chalcfrontella*, var. *fumerella*, from which it is sufficiently removed by the venation of the hindwings. The third joint of the labial palpi is very slender and nearly as long as the second.

2. **B. hulstella** n. sp. (Plate I, fig. 2).—Palpi long, ascending, slightly recurved, moderately thick, the terminal joint nearly the thickness of the preceding one, gray, the second joint without densely, the third less so, overlaid with fuscous, extreme apex of former pale. Head gray, speckled with fuscous. Antennæ dark fuscous brown, a trifle paler beneath, basal joint sordid grayish-white, scarcely one-half longer than wide, pecten of stiff hairs. Thorax gray, speckled with fuscous, more densely anteriorly, forewings moderately wide, ground color rather densely overlaid with dark fuscous-brown so as almost to conceal the former, but leaving a distinct whitish fascia at one-third, the latter is nearly straight, equidistant from the base at both margins, and slightly bisinuate externally, it is heavily shaded externally, especially in dorsal portion, forming a large, triangular dorsal patch not sharply defined externally; at the end of the cell are two large, dark brown spots; the dark dusting is somewhat more condensed along the costal margin; cilia dark gray, sprinkled with whitish and fuscous scales. Hindwings as wide as the forewings, costa not retuse, apex obtuse; gray, dusted with fuscous, especially along the margins. Abdomen above brown, segments fringed with pale scales; underside of body and legs grayish-white, dusted with brown, apices of tarsal joints paler.

Expanse 15.0 mm., 0.6 inch.

*Hab.*—Texas, exact locality not known. A female specimen in my collection, contained in the Hulst Collection, and obtained from Prof. John B. Smith of Rutgers College. It gives me pleasure to name this form after its illustrious collector, the late Rev. George Hulst.

3. **B. yuccæcolella** n. sp. (Plate I, fig. 3).—Head dark ochreous; obscurely flecked with some fuscous scales; antennæ rather robust in the male, more slender in the female, fuscous brown, basal joint ochreous. Palpi not slender, alike in both sexes, grayish-ocherous, thickly dusted with dark brown scales, apex of the second and third joint pale. Thorax ochreous-fuscous. Forewings elongate, pointed, ground color grayish-ochreous, overlaid with bark-brown scales, the latter intermixed especially in outer part of wing with pale scales, basal space paler than remainder of wing, limited externally by an irregularly curved line, a large subquadrate costal and a smaller dorsal patch, a heavy dash in the fold, base dusted with fuscous, some scattered dark scales along the fold, the marginal spots are about equidistant from the base, remainder of wing more densely overlaid with fuscous scales, especially along the costa, with a nebulous spot about the middle, apical part of wing interspersed with whitish scales, which give when examined with a fairly strong lense a "pepper-and-salt" appearance; two spots at end of cell, the lower one generally larger

and more distinct, below the latter on the dorsal margin is an indistinct spot; these spots are variable and may be obsolete. Cilia gray, with some whitish scattered scales in basal portion. Hindwings rather narrow, pointed, under 1, grayish with some lustre; cilia gray, nearly 2. Abdomen fuscous, segments fringed with whitish scales; anal bush ochreous-fuscous. Legs grayish, fuscous externally, an oblique band at middle externally and apices of tibiæ pale; tarsi fuscous, joints pale at apex.

Expanse 12.0–18.0 mm., 0.41–0.72 inch.

*Hab.*—Texas.

Five specimens, three females and two males, in the Nat. Mus. Coll. are before me. They bear the label “Bred from *Yucca baccata*, iss. Apr. 18th, 1897.” It is quite likely that freshly bred material may have a decided darker color.

4. **B. plummerella** n. sp. (Plate I, fig. 4.)—Head, palpi, basal joint of antennæ and thorax gray, dusted with fuscous, with some metallic lustre; antennæ fuscous, very faintly annulate with pale; stouter, finely denticulate and ciliate beneath, cilia  $\frac{1}{2}$ , deeply excised above basal joint in the male, simple and more slender in the female, palpi slender, a trifle longer in the female than the male, second joint dark fuscous externally and along the margins within, third joint nearly as long as the second, thinly dusted with fuscous. Forewings elongate, ground color grayish-white, clouded with dark fuscous; base dark fuscous becoming paler externally where it leaves an ill-defined, strongly curved fascia, the summit of which reaches to two-fifths and within the latter is the first discal spot, externally the fascia is limited by dark fuscous marginal clouds beginning at one-third, which more or less coalesce and become effaced externally, the fuscous clouding is more pronounced in costal half of wing, two well-marked spots at end cell, another ill-defined, but strongly curved fascia in apical part of wing; the fuscous dusting is interspersed with whitish scales; cilia grayish-fuscous, sparsely sprinkled with whitish scales. Hindwings nearly 1, grayish-fuscous, darker externally and along the dorsal margin; cilia gray, a little over 1, paler towards the base. Abdomen fuscous, anal bush ochreous; legs grayish-white, more or less thickly—especially externally—dusted with fuscous, tip of tibiæ and tarsal joints paler. Expanse 10.0–14.0 mm., 0.4–0.56 inch.

*Hab.*—Plummer’s Island, Md.

Six specimens, three males and three females, from the Nat. Mus. Coll. are before me. Taken by Mr. A. Busck at the above locality, July, 1903. Somewhat variable in extent and definition of markings and even in wing form.

Var. *fusco-purpurella*.

Two specimens taken with the above are decidedly dark fuscous brown, sprinkled with whitish scales, the latter more profuse in basal two-fifths, this space is acutely angulated outwardly, the apex of the angle extending beyond the middle of wing length. The wings are somewhat broader than in the typical form, and it may prove to be distinct.

Var. *simplicella*.

A female specimen in my collection from Iowa City, expansion 16.0 mm., 0.64 inch, differs from the above by the second palpal joint being pale at apex, head and basal joint of antennæ ochreous-gray, thorax grayish-fuscous. Forewings gray, without markings, except a dark fuscous patch at base of costa and two large spots at end of cell. It will probably prove distinct.

5. *B. sagitella* n. sp. (Plate I, fig. 5.)—Head gray, finely speckled with fuscous, without lustre; antennæ slender, fuscous, very indistinctly annulate with pale, finely denticulate beneath, basal joint gray. Palpi moderate (♂) gray, thinly dusted with fuscous, lower margin and a narrow ring before the extreme apex of second joint dark fuscous, extreme apex pale, third joint conical, two-thirds the length of second. Forewings moderately wide, gray, speckled with dark brown; a pale fascia at one-third, a little nearer the base on the costal margin and acutely projecting into the median space above the fold, outwardly the fascia is heavily margined with dark fuscous brown, basal portions of wing rather densely covered with dark fuscous scales at the base and along both margins, a fine dark line immediately below the fold; outer part of wing more densely fuscous in costal portion; two well marked spots at end of cell; about six or seven well marked marginal spots around the apex, those on the costa more distinct. Cilia gray, dusted with fuscous scales, especially in basal portion. Hindwings a trifle under 1, grayish-fuscous, rather obtusely pointed, cilia grayish-fuscous, especially towards the apex, with pale basal line. Thorax and abdomen dark fuscous, anal bush ochreous-gray. Legs grayish-fuscous, tarsi darker. Expanse 11.0 mm., 0.44 inch.

*Hab.*—Hazleton, Pa.

A single male specimen, taken at light, August, 1908. Well marked and unlike any other species of the genus.

6. **B. distinctella** n. sp. (Plate I, fig. 6.)—Head grayish-white, with some lustre, antennæ slender, grayish-fuscos, indistinctly annulate with paler, basal joint grayish white. Labial palpi long, slender, the third joint three-fourths the length of the second, whitish, rather densely dusted with fuscous scales without, less so within, extreme apex of second joint and basal portion of third whitish. Thorax grayish-fuscos. Forewings elongate, pointed, ground color white, outer three-fifths rather densely dusted with fuscous, especially so adjoining the whitish basal portion, the latter speckled with fuscous towards the base, thus leaving a nearly white fascia at two-fifths, approximately straight, somewhat irregular without and ill-defined within; a rather large, ill-defined spot at the middle at one-half the wing length, and two crescent shaped coalescent spots at end of cell, the upper one reaches a trifle further outwardly, their concavity towards the base; beyond these is a rather large, irregular spot. Cilia grayish with some scattered brownish scales. Hindwings 1, gray, dusted with fuscous, especially towards the apex, cilia 1, gray with pale basal line. Abdomen fuscous, segments fringed posteriorly with pale scales. Legs grayish-fuscos, tibia at apex, an ill-defined spot at middle externally, and apices of tarsal joints paler. Expanse 17.0 mm., 0.68 inch.

A female specimen without locality label in the Nat. Mus. Coll., numbered 21,469. It bears some remote resemblance to the European *B. phycidella*, but the insect is lighter in color, more strongly marked, wings, especially the hind wings, wider and less pointed.

7. **B. villella** Busck.—“Labial palpi light yellowish-brown, blackish on the outside, Face, head, thorax and anterior wings unicolorous light yellowish brown, the same shade as in *pergandella* (*Triclonella*), without markings of any kind. Posterior wings shining yellowish fuscous, cilia golden brown. Legs yellowish brown, tarsi on the outside blackish. Alar expanse 15 mm.”

The type, a female specimen in the National Mus. Coll., was bred by Mr. Pergande from *Xalisma* (*Andromeda*) *ligustrina*, collected at Cabin John, Md. Mr. Busck referred this species to his genus *Triclonella*. In a personal conversation, however, he informs me that it belongs to *Blastobasis*. The venation of the hindwings is that of the genus under consideration, but as to the forewings I could not satisfy myself. It certainly is an aberrant form.



## ZENODOCHIUM Wlsh..

Type.—*Monopetali* Wlsh.

Agrees with *Blastobasis* in venation, and from which it differs by the conchyloidal shield of close set scales, replacing the pecten of the basal joint of the antennæ. Lord Walsingham describes the palpi "middle joint densely clothed." While this cannot be said of the two species which I refer here, I consider the character too vague to be of generic value.

1. **Z. citricolella** Ch. (Plate I, figs. 7, 7a.)—Head white, thinly speckled with pale fawn-colored scales; face smooth, vertex somewhat rough-scaled, Antennæ white, tinged with gray, finely denticulate beneath, basal joint with a few scattered fawn-colored scales; pecten replaced by a flattened, curved tuft of white scales. Labial palpi long, not very slender, white, thickly sprinkled, especially externally, with brownish scales, third joint nearly as broad at base than the apex of the second joint and about two-thirds the length of the latter (♂). Forewings moderately wide; white, suffused with dark fuscous and densely sprinkled with brown and fawn-colored scales; markings dark fuscous, in longitudinal lines or patches, somewhat as follows: A subcostal streak for about two-fifths from the base, a line above the fold of equal extent, a heavy, irregular streak in the fold from near the base to about the middle where it almost joins a dark irregular spot in the fold; a short line near the base and within the dorsal margin; above the plical spot and about the middle of the wing is another less distinct spot, and above this a dark line parallel to the costa and ending above the two well marked spots at end of cell, two short dashes in dorsal half of wing, the outer one ending immediately below the lower spot at end of cell, several short dashes in apical part of wing, between these latter are a number of short, white, longitudinal lines. Cilia whitish, sprinkled with pale brown scales, forming irregular lines. Hindwings a trifle under one, pale yellowish-gray, shining, thinly sprinkled with fuscous externally; cilia scarcely over 1, yellowish-gray, paler at base. Thorax whitish, thickly overlaid with brown, patagia more thinly sprinkled. Abdomen silvery gray above, anal bush concolorous, underside white. Legs white, slightly dusted with brown; hind tibia very coarsely rough haired. Expanse 12.0–19.0 mm., 0.48–0.76 inch.

*Hab.*—Florida, Texas. Bred from dry orange infected with *Aræocerus fasciculatus*.

Type in Nat. Mus. Coll. A ♂ specimen from the same source is before me, it bears label "1101 P. Tinea from



granate apple, April 21, 1879." Another specimen in my collection, also a male, from Brownsville, Texas, is much smaller and less distinctly marked.

Lord Walsingham's statement concerning the palpi "terminal joint more than two-thirds the length of the median," refers to the female.

What Chambers meant by his statement, "the fact that the submedian vein of the forewing gives off a branch to the dorsal margin from about the middle which I have not observed in any other Tineid" is difficult to explain, as neither Mr. Busck nor myself have been able to discover such a vein.

#### **Z. coccivorella** Ch.

I give here Mr. Chambers' short description: "As mentioned in the description of *citricolella*, this species, of which I have seen two damaged females, has a tuft projecting from the basal joint of the antennæ. Face elongate and narrow, more convex than in *citricolella*. It is smaller and not so slender. Submedian vein of forewing not branched. It is sordid whitish with silken lustre, dusted with fuscous, a fuscous streak on forewing at base of fold, one near the base within the costal margin, apical part of wing densely dusted with fuscous. Hindwings stramineous."

"Comstock informs me that the larva lives on a large *coccus* on oak."

Lord Walsingham\* makes the following note on this species: *Type*.—A female. *Habitat*.—Cedar Keys, Florida. Larva in coccid-scales on oak (*Kermes*, species, near *pallidus* Reaumur). Collected in March; issued between April 1–10. This species is omitted from Dyar's list. If the type is still extant, there should be no difficulty in placing it in its proper genus. Chambers' reference to the neuration is doubtless incorrect."

I have no comments to make. The type is not in the Nat. Mus. Coll. Notwithstanding the difference in their larval habits I have a suspicion that *coccivorella* is only a varietal form of, if not identical with, *citricolella*. As I have not seen the former, this is merely conjectural.

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\* Proc. Nat. Mus., Vol. XXXIII, p. 204.

**VALENTINIA** Wlsh.Type *glandulella* Riley.

Labial palpi long, recurved, slender; generally more robust with the terminal joint relatively shorter in the male than in the female. Antennæ shorter than the forewings, basal joint broad, convex, with distinct pecten, deeply excised above the latter with a scale tuft in the excision in the male; shaft stouter in the male than female. Forewings elongate, pointed, costa approximately straight, depressed to apex in apical part. Twelve veins, 7 and 8 stemmed, 7 to costa, remaining veins free. Hindwings variable; nearly as wide as the forewings, with dorsal margin more or less distinctly curved, cilia scarcely over  $1\frac{1}{2}$ , or scarcely half as wide as the forewing, dorsal margin nearly straight from near the base to the acutely pointed apex and cilia 2 or over. Eight veins, 6 and 7 separate, 4 and 5 stemmed, 3 free, arising before the angle of the cell. Abdomen somewhat flattened. Hind tibiæ long haired above.

As far as known the genus is only represented in North America.

## TABLE OF SPECIES.

- |                                                           |                          |
|-----------------------------------------------------------|--------------------------|
| 1. Forewings with fascia, at one-third.....               | 2.                       |
| Forewing without such a fascia .....                      | 6.                       |
| 2. Spots at end of cell distinct .....                    | 3.                       |
| Spots obliterated by a transverse fascia .....            | 4. <b>nothrotres.</b>    |
| 3. Forewings not obviously narrowed from anal angle ..... | 4.                       |
| Forewings narrowed from anal angle.....                   | 3. <b>quaintancella.</b> |
| 4. Fascia angulated .....                                 | 5                        |
| Fascia curved .....                                       | 5. <b>retectella.</b>    |
| 5. Fascia heavily shaded in costal portion.....           | 1. <b>glandulella.</b>   |
| Fascia not so shaded .....                                | 2. <b>fractilinea.</b>   |
| 6. Ochreous-gray, a subcostal spot near the base.....     | 6. <b>floridella.</b>    |
| Without such a spot.....                                  | 7.                       |
| 7. Pale yellowish-white; a streak in basal third.....     | 7. <b>canfectella.</b>   |
| Pale creamy yellow; no such a streak .....                | 8. <b>repartella.</b>    |

1. **V. glandulella** Riley. (Plate I, fig. 8, *8a*.)—Head and thorax ashen gray, densely speckled with dark fuscous scales; antennæ dark fuscous, basal joint with pecten, grayish-ochreous; in the male stouter, deeply excised above basal joint with a strong scale tuft in the excision; shaft denticulate and shortly ciliate below; in the female more

slender, simple, and finely denticulate below. Labial palpi long, curved upward, decidedly stouter in the male than the female, grayish-white, the second joint externally, densely overlaid with dark fuscous scales, except extreme apex, third joint less densely speckled. Forewings moderately wide, margins nearly parallel from near the base to apical fourth, equally narrowed thence to apex, latter rather obtuse; ground color whitish, more or less densely overlaid with dark brown scales, forming a fairly constant pattern, a whitish fascia at one-third, curved outwardly and somewhat angulated in the fold, this fascia is shaded with dark fuscous within, which increases in density towards the base, outwardly the fascia is densely shaded with dark fuscous, which extends a little further along the costa than along the dorsal margin; two well marked spots at end of cell and immediately beyond these a transverse costal and dorsal spot, which form somewhat of a fascia, interrupted in the middle third, beyond these spots are six or seven, more or less well marked marginal dots; remaining surface more or less densely speckled with fuscous; cilia gray towards the base and speckled with white and fuscous scales; outer portion traversed by several ill-defined longitudinal lines. Hindwings over  $\frac{1}{2}$ , dorsal margin feebly convex, gray, dusted with fuscous; cilia under  $1\frac{1}{2}$ , gray, with pale basal line. Abdomen dark fuscous, segments margined posteriorly with whitish scales; anal bush grayish-ochreous. Under-side of abdomen grayish-fuscous. Legs gray, suffused with fuscous, hind tibia with an oblique fascia at middle and at both ends paler; tarsal joints paler at apex. Expansion 16.0-23.0 mm., 0.64-0.92 inch.

*Hab.*—Atlantic States. Tex. (Dallas), Mo. (St. Louis), N. C., Cal. (Lake Co.) (Walsingham).

Larva in acorns. I have examined Zeller's type of *nubilella*. A female, bearing his green label—*Blastobasis nubilella* Z.; red type label 1714, locality label Dallas, Tex. Boll., compared with specimen of *glandulella* Riley, in my collection, found identical with the latter. Lord Walsingham's\* reference to Mr. Chambers' and Mr. Riley's assertions concerning the identity of *nubilella* Zell., *triangularisella* Ch., and *sciaphilella* Zell., must be corrected as follows: *nubilella* Z., as there and above stated, is synonymous with *glandulella* R.; *triangularisella* Ch., and *sciaphilella* Z., are the same and belong to *Holcocera*—sensu Clementi. The type of *sciaphilella* presents an anomaly in the neuration of the hindwings, as it has 8 veins on the left side (*Holcocera*) and 7 (*Blastobasis*) on the right, veins 3 + 4 are stemmed. This no doubt accounts for Mr. Busck referring this species to *Blastobasis*.

\* Prov. U. S. Nat. Mus. Vol. XXXIII, p. 201.

2. *V. fractilinea* Zell.

Zeller describes this species as follows :

"Parva, alis ant. brevius culis; canis, striga ante mediam albida, in angulum fracta, pastice nigrificata-marginata, punctu disci postum strigulaque venæ transversæ inferias incrassata nigris ♂.

"Palpisimilar to those of *resectella* Zell., though a trifle shorter, dark fuscous externally, apex of second joint pale yellowish, third joint less acutely pointed and a trifle darker at the apex. Abdomen broad—as in *resectella*—pale yellowish gray, underside paler.

"Forewings  $2\frac{1}{2}$ " long, broad and obtuse as by *B. sciaphilella*, grayish-white, moderately dusted with blackish scales, more densely so on the basis, outer half of costal and dorsal margins. The transverse line before the middle forms a very conspicuous angle, more or less distinctly lined within with dark fuscous, an indistinct spot before the angle; externally distinctly lined with dark fuscous, which is widest towards the costa. Behind the apex of the angle, though a trifle higher, lies in the paler median space, a dark spot. Two coalescent brownish spots form a transverse bar, which almost attains the hind margin.

"Hindwings scarcely half the width of forewings, equally narrowed, rather sharply pointed with nearly straight posterior margin; grayish fuscous, cilia pale with a very fine, pale yellowish basal line." Two ♀ ♀.

Not known to me. Type and paratype in the Walsingham collection.

3. *V. quaintancella* n. sp. (Plate I, fig. 9.)—Head, basal joint of antennæ and thorax pale mouse gray, minutely speckled with fuscous; shaft of antennæ grayish-fuscous, very indistinctly annulate with pale; in the male stouter, excision above the basal joint not profound and projecting scale tuft small, finely denticulate and ciliate below; in the female more slender, simple. Palpi moderate, stouter in the male than female, grayish-white, densely dusted without, less so within, with dark fuscous, tip of second joint pale, the latter about one-third longer than the terminal joint. Forewings moderately wide, widest near the base, from thence very gradually narrowed towards the apex; ground color dirty white, overlaid with fuscous scales in varying density, basal third paler, limited externally by an ill-defined outwardly convex whitish fascia, which is subangulated about its middle, a dark dash in basal space beneath the fold, and a faint spot just before angle of fascia; outwardly the fascia is limited by an ill-defined costal and dorsal spot, remainder of the wing, especially along the margins more densely sprinkled with fuscous scales; a little beyond the angle of the fascia is a well marked, somewhat elongated, dark fus-

cous spot, two less distinct, roundish dots at end of cell, and beneath these on the dorsal margin a small patch; cilia gray, thinly dusted in their basal portion with whitish scales, interspersed with pale fuscous, two or three ill-defined longitudinal lines towards the apex. Hindwings narrow, lanceolate, scarcely over  $\frac{1}{2}$ , gray, infusate towards the apex; cilia 2, gray, with two or three longitudinal lines near the apex. Abdomen fuscous; anal bush ochreous, ventral surface pale ochreous, more or less suffused with fuscous, except last two segments. Legs whitish, more or less densely suffused and speckled with fuscous, tibiae at base, an oblique band of posterior tibiae above the middle externally and end of tarsal joints, pale. Expansion 12.0-14.5 mm., 0.48-0.58 inch.

*Hab.*—No exact locality given.

Six specimens from the Nat. Mus. Coll., without locality labels, were bred by Mr. Quaintance from apple, and it gives me pleasure to name this species in his honor. The specimens, which were not spread, vary more or less in distinctness of markings as well as density of the fuscous dusting. This species comes nearer to *glandulella*, from which it is at once distinguished by the much narrower hindwings and longer cilia of the same, its markings, though similar, are far less pronounced; in form of hindwings, it would appear to be close to *retectella*, with which it agrees in size.

#### 4. *V. nothrotres* Wlsh.

Lord Walsingham's description of this species is as follows:

"Antennæ pale slaty-brownish. Palpi grayish-brown, with whitish sprinkling. Head and thorax whitish, with grayish-fuscous speckling, especially in a band across the front of the thorax and another across the posterior end of the tegulæ. Forewings dirty white, profusely sprinkled with grayish-fuscous, of which a transverse fascia crosses the wing at one-third; this is slightly angulated outward in the middle, and partially diffused outward in the middle and about the costa; at the end of the cell a somewhat less defined, straight, transverse fascia occurs, absorbing the two spots which would otherwise appear at the end of the cell, corresponding to a small discal spot at about the middle of the wing; the apical area is thickly bestrewn and mottled with grayish-fuscous; cilia brownish-gray, sprinkled with whitish- and grayish-fuscous atoms. Hindwings brownish-gray; cilia slightly paler. Abdomen slaty-gray, anal tuft paler. Legs pale, brownish-gray. Alar expanse 12.0 mm."

*Hab.*—Arizona. *Type.*—Male, in the author's collection.

Lord Walsingham states further :

"A small and narrow winged species, somewhat similar in markings to *retectella* Zell., with which it agrees in having a strong notch and pecten on the antennæ, and 4 and 5 of the hindwings stalked, but is quite distinct in size and shape."

#### 5. *V. retectella* Zell.

Of this species the author gives only a comparative description relative to his *umbilella*—*glandulella* Riley—as follows :

"A smaller American specimen, female, forewings 3" long, cannot be identified with either *nubilella* Zell., or *sequella* Zell., as the hindwings are still narrower and more pointed than in the former species. The forewings of this species—*retectella*—are not so dark as in *nubilella*. The transverse white line is simply convex outwardly and somewhat wavy, wider, and limited towards the base by an ill-defined spot of blackish scales ; the strongly marked spot in the median space is present. The two spots at end of cell are represented by a heavy transverse spot. Hindmargin infuscate, without black spots. Ovipositor long, awl-shaped, depressed."

*Hab.*—Texas.

Unknown to me in nature. The type, a female, is in the Walsingham collection.

6. *V. floridella* n. sp. (Plate I, fig. 10.)—Palpi pale ochreous, dusted with fuscous externally, apex of second joint pale, lower edge of second joint somewhat roughened with dark brown scales ; a little stouter in the male, terminal joint two-thirds the length of the preceding ; female : slender, terminal joint three-fourths the length of the second. Head, basal joint of antennæ and thorax pale ochreous, the latter and vertex dusted with fuscous. Antennæ ochreous-fuscous, deeply excised above basal joint in the male with conical tuft in the excision. Forewings rather narrow, of nearly equal width for two-thirds, thence gradually narrowed to the apex, costal margin approximately straight for two-thirds, apical third depressed to the apex ; ground color sordid ochreous, suffused with fuscous brown without any particular pattern, the dark colors more evident along the margins, also some longitudinal streaks, especially along the fold and below the costal



margin near the base, first discal spot and two at end of cell, distinct, though not equally so; from the former proceed two, not very distinct, divergent lines, consisting of white scales, margined with black scales and extending to the end of the cell, a row of black dots along the base of cilia; some scattered white scales in apical part of wing, a very distinct subcostal spot very near the base; cilia gray with some scattered dark scales in basal part. Hindwings scarcely over  $\frac{1}{2}$ , dorsal margin nearly straight from anal angle to the acute apex, gray, dusted with fuscous; cilia over 2, gray, basal half with yellowish tint. Abdomen grayish-fuscous, anal bush grayish-ochreous. Underside of body and legs gray, more or less densely suffused with purple brown; apices of tibiae and tarsal joints paler. Expanse 11.0–16.0 mm., 0.44–0.64 inch.

*Hab.*—Florida (Crescent City).

Four specimens, one male and three females, in Nat. Mus. Coll., bear the label, "From ♀ cone of *Zamia integrifolia*." Not clearly related to any of the species known to me. No indications of a fascia at one-third of forewing. The divergent lines in middle space of forewing are distinct in only one, indistinct in another, and obsolete in the remaining two.

7. *V. confectella* Zell. (Plate I, fig. 11.)

In "Anmerkung 1," in his description of *Hypatima sub-senella*, Zeller very doubtfully refers a somewhat worn specimen from Texas to this species. The greatest difference he finds is the very narrow hindwings, without, however, recognizing the differences in venation. I herewith give his comparative description:

"The pale gray ground color of the forewings have a somewhat yellowish tint. A dark shade at the base of costa. Instead of the first costal spot, is a very fine line visible. The short plical line above the dorsal patch is wanting, and the latter extends further towards the base, while a longer line within the fold, and nearer the base is quite distinct and of which no trace is visible in *subsenella*. The streak before the end of the cell is wanting entirely and a costal spot immediately above those at end of cell is quite evident."

I have examined the type of this species, a female, in the Cambridge Museum, and offer the following complimentary notes in order to enable the recognition of this form in the future:

"Palpi, head, basal part of antennæ and thorax, sordid ochreous-white with some lustre. Palpi slender, the third joint two-thirds the length of the second, the latter dusted with fuscous externally. Thorax dusted with fuscous on the disk. Forewings sordid white, with a very faint yellowish tint, dusted with fuscous. Basal space not well defined externally, with a longitudinal line above the fold; a dorsal nebulous patch near the base; very faintly indicated patches on both margins at one-third, a longitudinal first discal spot and two spots at end of cell with faint costal patch above; apical part of wing more densely dusted. Hindwings scarcely  $\frac{1}{2}$ , costa retuse in outer half, grayish-white dusted with fuscous; cilia 2. Abdomen pale ochreous-fuscous. Underside pale ochreous-white. Legs ochreous-white; tibiæ and tarsal joints pale at the apex, fuscous externally." Expanse 12.0 mm., 0.48 inch.

*Hab.*—Texas (Dallas, Boll collector).

Veins 4 + 5 of hindwings stemmed, 3 before angle of cell. A male specimen in my collection, from Montclair, N. J., and received some years ago from Mr. W. D. Kearfott, agrees in every respect with this species, except that the dark line above the fold in basal space is replaced by an elongate nebulous patch. There is a faint nebulous costal patch beyond the middle and a small spot below the costa and just before the upper spot at end of cell.

8. **V. repartella** n. sp.—Entire insect pale creamy yellowish. Head, thorax, and basal joint of antennæ very slightly touched with pale fuscous; antennæ (male) slender, slightly thickened towards the base, excision above basal joint not profound, projecting scale tuft long, shaft shortly ciliate, but not denticulate within, a trifle darker than the basal joint above, pale brownish beneath. Palpi (male) slender, long, terminal joint two-thirds the length of the second, dusted with fuscous, more densely without, leaving the base and apex pale. Forewings rather narrow, of approximate equal widths of basal half, thence gradually narrowed to apex, latter pointed; extreme costa in basal portion brownish fuscous, surface very slightly suffused with pale fuscous towards the base and reddish-brown towards the apex; a small, elongate spot in median space before the middle, a little nearer the costa than the dorsal margin, two scarcely perceptible dots at end of cell, along the base of costal cilia are four or five somewhat elongate spots, and a similar one just below the apex on the dorsal margin; cilia concolorous with a few scattered pale brown scales. Hindwings  $\frac{2}{3}$ , dorsal margin very slightly curved from base to apex, whitish, slightly infusate towards the apex, with some lustre; cilia  $1\frac{1}{2}$ , grayish-white. Abdomen above yellowish-gray, anal bush concolorous; under-

side yellowish. Legs more or less densely tinged with fuscous, especially the anterior; tarsal joints scarcely paler at apex. Expansion 15.0–18.0 mm., 0.6–0.72 mm.

*Hab.*—Colorado, Denver.

Two ♂♂, in the Nat. Mus. Coll., collected by E. Oslar. One of these is minus its left fore- and hindwing, which are contained in a slide; the other is minus its left forewing. The pale, yellowish color distinguishes this species at once from all others at present known to the writer. I retain the MSS. name given it by Mr. Busck.

### EURESIA gen. n.

Type *pulebella*.

Labial palpi long, diverging, pending (in the dead insect), second joint rather thick, roughened beneath with scales, third joint shorter than the second, slender, and like the latter roughened beneath with scales. Antennæ (♂) shorter than the forewing; basal joint short and broad, pecten setaceous, shaft deeply excised above the base, neither denticulate or ciliate beneath. Forewings moderately elongate, pointed, twelve veins, vein 7 + 8 stemmed, 7 to costa, remaining veins free, but crowded at end of cell, posterior angle of latter very close to dorsal margin. Hindwings much narrower than the forewings, lanceolate, pointed, costa slightly retuse in outer half, cilia long; eight veins, vein 4 before angle of cell, 5 + 6 free. Posterior tibia rough haired above.

Represented by a very small species strongly resembling and readily to be taken for a *Pigritia*. Distinguished from the latter by its long palpi and hindwings with eight veins. From the other genera of *Blastobases* with eight veins in the hindwing, by veins 2, 3 + 4 of the latter arising from the posterior median vein.

**E. pulchella** n. sp. (Plate II, figs. 12, 12a.)—Palpi ochreous, dusted with fuscous without and within, leaving apices of joints pale. Head ochreous, lightly touched with fuscous. Antennæ fuscous-brown, excised above base, basal joint ochreous, tinged with fuscous, pecten gray. Thorax ochreous-fuscous. Ground color of forewings pale ochreous-brown, a rather wide, silver white fascia at one-third, not sharply defined within, more so externally, approximately straight

slightly curved outward at dorsal margin, and heavily shaded externally with dark brown, first discal large about middle of wing length, two spots at end of cell, almost obscured by a slightly oblique, straight fascia, middle and apical spaces more or less suffused with brown; a rather dense sprinkling of white scales before the fascia at end of cell, more especially in dorsal portion, some similar scales in apical third. Cilia gray, with about four pale lines sprinkled with white and brown scales near base. Hindwings pale gray, dusted with fuscous; cilia over 2, gray, tinged with ochreous towards the base. Abdomen grayish-fuscous; anal bush grayish-ochreous. Underside of body grayish-white, with silvery lustre. Legs ochreous-white; tarsi, especially posterior, fuscous externally, apices of joints paler. Rough hairs of posterior tibiæ pale ochreous. Expanse 8.5 mm., 0.34 inch.

*Hab.*—Washington, D. C. A unique male specimen collected by Mr. A. Busck, June, 1902.

### CALOSIMA gen. n.

Type *argyrosplendella*.

This genus differs from *Holcocera* in the presence of a conchiloidal shield of close set scales, on the basal joint of the antennæ instead of a pecten and the absence of discal spots or other markings of the forewings.

The head is rather small and depressed, the face strongly receding, giving thus the thorax a somewhat more convex appearance as is usual in this group. The palpi are long, slender and recurved, the second joint scarcely thickened towards the apex. The antennæ are not excised above the basal joint in the male. Forewings more or less elongate, acutely pointed; 12 veins, 7 + 8 stemmed, 7 to costa. Hindwings 8 veins, 3 + 4 connate or short stemmed, 5 connate with the stem.

In appearance the two species here described have rather an *Æcophorid* habitus than that of a *Blastobasid*. The venation, however, admits of no doubt. This genus holds the same relationship to *Holcocera* as *Zenodochium* holds to *Blastobasis*.

The two species, though closely allied, may readily be distinguished as follows:

Larger, extreme costa pale, hindwings obtusely pointed.....**dianella**.  
Smaller, extreme costa dark brown, hindwings acutely pointed.

**argyrosplendella**.

1. *C. argyrosplendella* n. sp. (Plate II, figs. 13, 13a, 13b).—Palpi white, dusted externally with fuscous, slender, third joint nearly as long as the preceding one, pointed. Head white, with pearly lustre. Antennæ pale grayish-fuscous, basal joint white, instead of pecten, a large conchyloidal shield of close set white scales, longer than width of joint; stalk grayish-fuscous paler towards the base, not excised above in the male, shortly pubescent beneath. Head and thorax white, with pearly lustre, lightly flecked with a few pale fuscous scales, the latter more in evidence on the thoracic disk. Forewings elongate, widened outwardly, costa slightly convex at the base, thence nearly straight and not strongly depressed towards the apex; pale yellowish white with strong lustre, extreme costal margin dark brown, lightly suffused with pale reddish-brown in apical portion; underside fuscous. Hindwings nearly 1, rather strongly narrowed towards the acutely pointed apex, costa retuse in outer three-fifths; pale grayish-white, lustrous; cilia a trifle over 1; underside white. Abdomen grayish-white, somewhat fuscous towards the base, with a certain lustre. Anal bush yellowish-white. Underside of body and legs, silvery white, with lustre, the anterior legs somewhat suffused with fuscous, tarsi likewise; brush of hind tibia white, Expanse 10.5–12.0 mm., 0.43–0.48 inch.

*Hab.*—Pennsylvania (Hazleton, July 4, 1906); La. (Vowells Mill, April, 1902); Fla. (Hastings, May 16, 1902).

Differs from *dianella* by its narrower wings, acutely pointed hindwings, costa of forewings nearly straight, generally paler color and smaller size. Three specimens in my collection, from as many localities, would seem to indicate a rather wide distribution of this interesting addition to our fauna.

2. *C. dianella* n. sp.—Palpi slender, reaching to antennal insertion, sordid white, dusted externally with fuscous, the third joint three-fourths the length of the second. Head and thorax creamy white, the former very smooth scaled with a greenish lustre, the latter lightly dusted with pale ochreous-fuscous with some lustre. Antennæ slender, simple; slightly pubescent beneath and not excised above the base in the male; basal joint of moderate length, slightly curved, nearly twice as long as wide, creamy white, conchoidal shield of long, close set scales, concolorous with basal joint. Forewings relatively wide, costa slightly convex from the base, sharply pointed, creamy yellow, thinly overlaid with pale ochreous-fuscous except for three-fourths of the costal margin, which is thus left paler; no markings; cilia pale ochreous-yellow. Hindwings as wide as the forewings, rather obtusely pointed, costa not retuse, except a slight sinuosity beyond inser-

tion of vein 8; grayish-white, slightly dusted with fuscous; cilia gray, 1; abdomen grayish-fuscous above; anal bush gray. Underside of body and legs silvery white, anterior and middle legs rather thickly the posterior slightly dusted with fuscous. Expansion 13.5 mm., 0.54 inch.

*Hab.*—Georgia (Forsyth). A male specimen in my collection, collected in 1895.

In coloration this species does not differ from the preceding, except perhaps in the more pronounced yellow, it is, however, larger, wings relatively wider, the hindwings obtuse at apex, and vein 10 of forewing is somewhat removed from angle of cell;  $3 + 4$  of hindwing from a very short stem, 5 subconnate with the latter.

### HOLCOCERA Clem.

Type *chalcofrontella*.

*Catacrypsis* Wlsh., *Cynotes* Wlsh., *Prorodica* Wlsh., *Hypatopa* Wlsh. (*Hypatima* H. S.).

Tongue long, scaly at base. Labial palpi long, ascending, generally recurved. Antennæ about three-fifths the length of the forewings, basal joint broad with setaceous pecten; shaft either excised above the basal joint in the male, or else similar in the sexes, frequently ciliated in the male. Forewings more or less elongated, pointed, without scale tufts; 12 veins,  $7 + 8$  stemmed, 7 to costa before the apex; rest of veins free. Hindwings ovate to lanceolate ovate, generally acutely pointed; costa more or less retuse beyond insertion of vein 8. All veins present,  $3 + 4$  generally stemmed, rarely connate, 5 free, connate with stem of  $3 + 4$  or arising from stem of the latter. Brush of bristly hairs of hind tibia always well developed.

The genus as here defined comprises a rather large number of species of diverse appearance and habitus. They are generally attracted by light. Of their primary stages, food plants, etc., but little is known.

Clemens in his description of the genus says: "A furcate apical branch near its end (the anterior median), the lower branch running into the apex of the wing." This is not the



case, as this branch (vein 7) goes to the costa, though close before the apex. Veins 3, 4 and 5 of hindwings vary greatly in their origin, not only in different species, but in different individuals of the same species and even in the same individual.

In the following table I have endeavored to proceed from the broad winged and dark colored forms to those with narrow wings and of light color, but from the nature of things this could not always be carried out. *Holcocera arizonella* Krft. belongs to *Colinita* Busck. (*Scythris* Hbn.).

#### TABLE OF SPECIES.

- |                                                                                  |                                |
|----------------------------------------------------------------------------------|--------------------------------|
| 1. Antennæ of male excised above basal joint .....                               | 2.                             |
| Antennæ of male not excised above basal joint.....                               | 21.                            |
| 2. Antennal cilia of male 1, or over; excision very deep .....                   | 3.                             |
| Antennal cilia of male scarcely exceeding one-half; excision less deep.....      | 7.                             |
| 3. Markings of forewings not in longitudinal streaks.....                        | 4.                             |
| Markings of forewings in longitudinal streaks.....                               | 6.                             |
| 4. Ground color white.....                                                       | 3. <b>estriatella.</b>         |
| Ground color not white.....                                                      | 5.                             |
| 5. Forewings dark purple-brown.....                                              | 1. <b>dives.</b>               |
| Forewings tawny, fuscous-gray.....                                               | 2. <b>aphidiella.</b>          |
| 6. Larger, with longitudinal striæ in apical part of wing.                       |                                |
|                                                                                  | 4. <b>gigantella.</b>          |
| Smaller, without such striæ .....                                                | 5. <b>nigristriata.</b>        |
| 7. Ground color gray or fuscous.....                                             | 8.                             |
| Ground color not gray or fuscous.....                                            | 13.                            |
| 8. Unicolorous .....                                                             | 6. <b>purpuricomella.</b>      |
| Not unicolorous.....                                                             | 9.                             |
| 9. Head, thorax, and base of forewings yellowish.                                |                                |
|                                                                                  | 7. <b>ochrocephala.</b>        |
| No such characters.....                                                          | 10.                            |
| 10. A v-line within the dorsal margin, antennæ very robust.                      |                                |
|                                                                                  | 8. <b>crassicornella.</b>      |
| No such line, antennæ at most moderate.....                                      | 11.                            |
| 11. Basal third of forewing paler, limited externally by an angulated line ..... | 9. <b>modestella.</b>          |
| Basal third of forewing not paler.....                                           | 12.                            |
| 12. Dark fuscous-brown, wings wider.....                                         | 10. <b>var. fumerella.</b>     |
| Grayish-fuscous, wings more elongate.....                                        | 10. <b>var. quisquiliella.</b> |
| 13. Ground color of forewings ochreous .....                                     | 14.                            |
| Ground color of forewings white .....                                            | 15.                            |

14. Conspicuously mottled with dark fuscous, two spots at end of cell.....10. **chalcofrontella**.  
Not conspicuously mottled, five dots at base of apical third.  
17. **maligemmella**.
15. A fascia at one-third, more or less distinct.....16.  
No fascia at one-third,.....19.
16. Fascia oblique.....16. **iceryæella**.  
Fascia curved or angulated.....17.
17. Two furruginous spots in median space.....12. **buskiella**.  
No such spots .....18.
18. Larger, costal part of fascia very conspicuous ...13. **sciaphilella**.  
Smaller costal part of fascia not more conspicuous than dorsal  
11. **confluentella**.
19. A large costal spot at two-fifths.....14. **plagiata**.  
Without such a spot.....20.
20. A streak above basal part of fold.....15. **livorella**.  
Without such a streak.....18. **gilbociliella**.
21. Forewings fuscous.....22.  
Forewings not fuscous .....24.
22. Basal space paler, angulated externally .....21. **stygna**.  
Unicolorous .....23.
23. Discal spots present, hind wings grayish-fuscous.....19. **funebra**.  
Discal spots obsolete, hind wings, semi-transparent,  
20. **inconspicua**.
24. Forewings ochreous-brown .....25.  
Ground color of forewings white .....27.
25. Expands 10 mm.....24. **nana**.  
Expands 15 mm. or more .....26.
26. A patch of white scales in basal space.....22. **boreasella**.  
Without such scales .....23. **nucella**.
27. With marginal spots .....28.  
Without such spots.....45.
28. Without a spot on posterior margin of cell.....29.  
Posterior margin of cell with a spot in middle space.....39.
29. With conspicuous longitudinal streaks.....25. **elyella**.  
Without such streaks.....30.
30. A row of spots between first discal spot and end of cell.  
26. **insulatella**.  
Without such a row of spots.....31.
31. One or two dark dashes in basal space.....32.  
Without such dashes .....35.
32. Two dashes in basal space .....33.  
One dash in basal space.....34.
33. Fascia at one-third entire.....28. **simulella**.  
Fascia at one-third interrupted .....29. **messelinella**.

- |                                                      |                               |
|------------------------------------------------------|-------------------------------|
| 34. A large triangular dorsal patch .....            | 30. <b>morrisoni</b> .        |
| Without such a patch .....                           | 31. <b>fluxella</b> .         |
| 35. Fascia very pronounced.....                      | 36.                           |
| Fascia ill-defined.....                              | 37.                           |
| 36. Head and thorax purplish-fuscous .....           | 27. <b>inclusa</b> .          |
| Head and thorax whitish.....                         | 32. <b>elemensella</b> .      |
| 37. Larger, 20 mm .....                              | 33. <b>irenica</b> .          |
| Smaller, 13-14 mm.....                               | 38.                           |
| 38. Gray, fascia nearly obsolete .....               | 34. <b>illibella</b> .        |
| White, fascia fairly distinct .....                  | 35. <b>crescentella</b> .     |
| 39. Fascia straight .....                            | 36. <b>spretella</b> .        |
| Fascia curved or angulated.....                      | 40.                           |
| 40. Without a dash in basal space.....               | 41.                           |
| With one or two dashes in basal space.....           | 42.                           |
| 41. Head and thorax bone-white .....                 | 37. <b>ursella</b> .          |
| Head and thorax gray as fuscous .....                | 38. <b>punctiferella</b> .    |
| 42. Head and thorax silvery white .....              | 40. <b>vestaliella</b> .      |
| Head and thorax grayish-fuscous.....                 | 43.                           |
| 43. Smaller, 10 mm.....                              | 42. <b>pusilla</b> .          |
| Larger, 13-15 mm.....                                | 44.                           |
| 44. With median costal spot.....                     | 39. <b>zelleriella</b> .      |
| Without such a spot.....                             | 41. <b>tartarella</b> .       |
| 45. Markings rusty red .....                         | 43. <b>rufopunctella</b> .    |
| Markings blackish-brown .....                        | 46.                           |
| 46. A straight subcostal line before the middle..... | 44. <b>melanostriatella</b> . |
| A curved line beyond the middle.....                 | 45. <b>interpunctella</b> .   |

1. **H. dives** n. sp. (Plate II, fig. 14.)—Head bronze, with cupreous bronze lustre; antennæ fuscous with a slight sheen; in the male, deeply excised above the base, scale tuft truncate, shaft slightly thickened towards the base, strongly ciliate, cilia over 1, pale gray. Palpi long, slender, a trifle more so in the male than the female, dark brown, third joint a little shorter than the second, slightly suffused with pale, especially within and towards the apex. Thorax and forewings a rich, deep bronze brown with considerable lustre, of moderate width, costa nearly straight from near its base to apical fifth, thence equally narrowed to apex; discal spots obsolete; the brown scaly covering is intermixed with very fine, grayish hair-like scales, only visible under a strong lense; cilia fuscous-gray, darker around the apex. Hindwings almost 1, fuscous-brown with a somewhat greenish, metallic lustre, cilia under 1, fuscous-gray. Underside of forewings fuscous, hindwings paler. Abdomen dark, bronze brown above, grayish-fuscous beneath, anal bush small, dark gray. Legs dark brown, posterior a trifle paler, femora with greenish metallic lustre, tarsal joints obscurely paler at the apex; underside of thorax fuscous, with pronounced greenish, metallic lustre. Expanse 16.0-19.0 mm.

*Hab.*—Penna. (Hazleton, Charleroi), Can. (Toronto), Md. (Plummer's Island).

Seven specimens, two ♂♂ and five ♀♀, are before me. Closely related to *H. aphidiella*, from which it is distinguished by its uniform dark brown color of forewings and absence of discal spots.

Var. *BASIPALLIDELLA* differs from the typical form by the basal two-fifths of the forewing being somewhat paler than the rest of the wing, this paler space is irregularly angulated externally, and the first discal spot is situated on its edge; the two spots at end of cell are generally distinct, and the immediate space surrounding them a trifle paler. Expansion 16.0–18.0 mm., 0.64–0.72 inch.

*Hab.*—Penna. (Hazleton), Mass. (Cohasset), New Hamp. (Hampton).

Both the typical form and the variety lack entirely the white tipped scales of *aphidiella*.

2. *H. aphidiella* Wlsh.—“Antennæ strongly notched beyond the basal joint, the basal extremity of the notch very plainly indicated by a truncate patch of scales from the lower margin of which the slender bent stem continues; beyond this they are biciliate three-fourths; basal joint with a strong scale-pecten; tawny-gray. Palpi slender, pointed, slightly recurved reaching, beyond the basal joint of the antennæ, the terminal joint nearly as long as the median; brownish cinereous, the median joint darkened externally. Head and thorax with an iridescent greenish lustre; tegulæ tipped with cupreous. Forewings with 12 veins, 7 and 8 stalked, 7 to costa; tawny reddish-gray; a darker discal spot, a little beyond one-third, is succeeded by a larger spot (or confluent pair of spots) at the end of the cell; below which the outer extremity of the fold is also dark shaded; cilia brownish cinereous; underside not iridescent. Hindwings with 8 wings, 5 out of the stalk of 3+4; rather shining, brownish-gray with greenish and cupreous iridescens towards the base; cilia brownish cinereous, with a slight ochreous tinge; underside decidedly iridescent. Abdomen brownish cinereous. Legs brownish cinereous. Alar expanse 13.0 mm.”

*Hab.*—United States, probably Washington City. “Pupa in gall of *Phylloxera* on *Carya alba*, etc.”

The above is Lord Walsingham's description, though not in the same sequence. I have examined the type in the Nat.

Mus. Coll. The author does not mention the interspersion of white tipped scales on the forewing. The similarity to *quisquiliella* Zell., as remarked by the author, is considerable, but the latter lacks the greenish-cupreous reflections, and the white tipped scales of forewing; it is a larger insect, the male antennæ less deeply excised, cilia under  $\frac{1}{2}$ , the modding more pronounced; altogether it is a lighter colored insect.

3. **H. estriatella** n. sp. (Plate II, fig. 15.)—Head rather narrow, ochreous, tinged, especially on the face with fuscous. Antennæ (♂) rather robust, basal joint ochreous, fuscous on the disk, pecten long, fuscous, shaft fuscous, paler toward the tip, indistinctly annulate with ochreous, finely denticulate and ciliate beneath, deeply excised above the base; cilia 1. Palpi long, slender, reaching considerably above level of head, second joint dark fuscous without, paler within, extreme apex, like the third joint, whitish, latter very slender, as long as the second, very sparsely speckled with pale brownish scales. Thorax shining, ochreous, disk suffused with fuscous, patagia paler, purplish-brown anteriorly. Forewings moderately wide, not widened exteriorly, costal margin very slightly depressed about the middle; ground color white, overlaid in varying density with dark purplish-brown, as follows: Base dark, shading off outwardly at one-third, the ground color forms an outwardly sharply angulated fascia, not defined within, sharply so without, summit of angle on the fold, the fascia recedes a trifle outwardly on the costa, externally the fascia is heavily shaded with very dark fuscous-brown, more so on the costal portion, where it extends to the outer third, but is somewhat interrupted about the middle; the remainder of the middle space is less densely speckled with dark fuscous, except along the fold, first discal stigma absent, two large, coalescent spots at end of cell, below which and a trifle outwardly is an ill-defined spot on the dorsal margin, an oblique costal blotch beyond the second discals, not reaching middle of wing, remainder of apical part of wing speckled with fuscous, the latter forming an ill-defined curved line before the apex, a dark line along base of cilia around the apex, most marked at extreme apex; cilia gray, basal part speckled with white, intermixed with fuscous scales. Hindwings nearly 1, gray, with sheen, dusted with fuscous; cilia under 1, gray, paler outwardly. Underside of forewings dark, hindwings pale fuscous. Abdomen fuscous, anal bush pale. Legs fuscous-brown, anterior more so, hind tibiæ with an oblique pale spot about the middle, apices of same and apices of tarsal joints whitish. Expanse 15.0 mm., 0.6 inch.

*Hab.*—Mass.

A male specimen, without exact locality, in my collection.

Very distinct and easily distinguished from the other species of this group, having the deep excision and long cilia of the male antennæ.

4. **H. gigantella** Ch.—Head, thorax, and palpi white, more or less dusted and finely speckled with fuscous. Antennæ grayish-fuscous above, brownish beneath, basal joint and pecten white, speckled with fuscous; in the male deeply excised above the basal joint with truncated scale tuft, cilia a trifle over 1. Palpi slender, ascending, not recurved, about equal in the sexes, terminal joint about three-fourths the length of the second, speckled, especially externally, with dark fuscous scales. Forewings elongate, equally narrowed from apical fourth, ground color white, more or less dusted and speckled with fuscous, veins and a line in the fold, dark fuscous; cilia gray, sprinkled with white, intermixed with fuscous scales around the apex. Hindwings over 1, yellowish-gray, dusted with fuscous, veins darker; cilia under 1, yellowish-white with an indistinct, subbasal dark line. Underside of forewings fuscous, darker towards the costa; hindwings grayish fuscous. Abdomen above and underside of body, whitish, segments above with a line of brownish scales before the posterior margin. Legs white, strongly suffused with blackish externally, leaving the ends of tibiæ and tarsal joints white; hind tibiæ strongly rough haired, hairs white. Expansion 30.0 mm., 1.2 inch.

*Hab.*—Colo., Cala. (San Luis Obispo).

Five specimens, two males and three females, in my collection, four of these are from the last-named locality, and have the ground color of the forewings more suffused with fuscous. Chambers supposed this species to feed upon yucca. Not easily confounded with any other species of this genus. The dark fuscous lines of the forewing, corresponding with the neurulation, give it a very distinct appearance, which is approached only by the following species (*nigristriata*), the latter, however, is much smaller and lacks the dark lines in the apical part of the wing.

5. **H. nigristriata** Wlsh.

The author describes this specimen as follows :

“Antennæ yellowish; basal joint considerably widened, with strong pecten, dirty whitish. Palpi white, sprinkled with blackish scales, very densely on the outer side. Head and thorax white, sprinkled with blackish scales. Forewings white, much sprinkled and striated with blackish scales; an elongate patch of these scales extends from the base along the fold to about one-sixth, and is diffused downward



to the flexus; a narrower streak from the base near the costa extends to a little beyond one-third, running parallel with the costa, but not touching it; beyond this, and a little further removed from the costa, a shorter but darker streak follows the upper edge of the cell to its outer extremity; two other streaks, commencing rather nearer to the base, are situated on the cell and on the fold respectively, while there is an indication of two dark dots at the end of the cell, scarcely more conspicuous than the blackish dusting which is generally distributed around them, and especially along the margins to the apex; cilia pale yellowish-brown, speckled with white and fuscous. Hindwings shining, pale brownish-gray; cilia yellowish. Abdomen whitish, with transverse fuscous lines. Legs whitish." Expansion 13.0 mm.

*Hab.*—Arizona. Two ♀ ♀.

Type in the author's, paratype in Nat. Mus. Coll. The latter I have examined. The dark streak in the fold extends the entire length of the latter. Its relationship to *gigantella* has been referred to under that species. Although the male is not known, I entertain scarcely a doubt that the species belongs into the section—"Antennæ of male excised above the base"—*Holcocera* sensu Clemensi. In the synoptic table I place it tentatively next to *gigantella*, its nearest ally.

6. **H. purpurocomella** Clem.—"Forewings uniform dark purplish-fuscous, with an indistinct, blackish median dot, and two of the same hue in the middle of the wing above the fold. Hindwings dark yellowish-fuscous, cilia same. Head and thorax fuscous with a reddish hue. Face tinted with yellowish. Labial palpi fuscous."

The above is Dr. Clemens' short description. The type, a female, in fairly good condition, is in the Clemens' collection at the Academy of Natural Sciences, Philadelphia. A number of specimens in my own collection. The labial palpi are long, recurved, a trifle more slender and longer in the female than the male, the third joint two-thirds the length of the second, sordid ochreous, densely dusted with dark fuscous, less so towards the apex, the lower edge somewhat roughened with dark fuscous scales. The head and basal joint of antennæ are sordid ochreous, more or less densely speckled and suffused with reddish fuscous. Antennal shaft fuscous, slender; in the male moderately excised above the base, with obliquely truncated scale tuft, ciliated; cilia scarcely  $\frac{1}{2}$ . The purplish fuscous coloring of

the forewings is uniform, though more pronounced in costal portion of the wing; a slightly paler shade, especially before the first discal and surrounding the spots at end of cell is noticeable in some specimens. The first discal spot before the middle, and the two spots at the end of cell, are quite distinct in the type and all specimens before me. Hindwings nearly 1, with considerable lustre, cilia under 1, paler than the wing. Abdomen fuscous, paler beneath; anal bush ochreous. Legs fuscous, especially anterior and median; hind tibia dark gray with median band externally and at apex, paler; rough haired above; tarsal joints paler at apex. Expansion 17.0-18.5, 0.68-0.94 inch.

*Hab.*—Penna., Maryland (Plummer's Island). Occurs undoubtedly over whole Atlantic district.

Might be confounded with *H. dives*, but differs, by its smaller size, relatively broader forewings, well marked discal spots, paler coloring and less lustre, and above all by the less profound excision and much shorter cilia of the male antennæ. Agrees in wing form and antennal structure with *chalcofrontella*, and resembles somewhat var. *fumerella* of that species, but lacks the mottling of the latter.

7. **H. ochrocephala** n. sp.—Head, thorax, and palpi pale ochre-yellow; the latter long, ascending but slightly recurved, terminal joint almost as long as the second, speckled, especially externally, with fuscous scales, leaving the apices of second and terminal joints paler. Basal joint and two or three basal joints of shaft of the antennæ yellowish-white, very slightly speckled with fuscous, remainder of shaft grayish-fuscous, anterior (exclusive of patagia) and posterior margin of thorax dark purplish-brown. Forewings moderately wide, grayish-fuscous, suffused in patches with dark fuscous, and overlaid with purple, extreme base, excepting its costal margin, pale ochre-yellow; first discal spot distinct, before the middle and nearer to the costal margin, two spots at end of cell less distinct, coalescent, cilia grayish-fuscous, paler at base. Hindwings 1, grayish-fuscous; cilia scarcely over  $\frac{1}{2}$ , grayish-fuscous, paler at base; vein 5 out of stalk 3 + 4. Abdomen above fuscous, beneath sordid yellowish-white, anal segment deep ochreous. Underside of thorax and legs pale ochre-yellow, speckled more or less densely with fuscous, leaving the ends of tibiæ and posterior tarsal joints paler. Expansion 16.0 mm., 0.64 inch.

*Hab.*—W. Va. (Aurora), Md. (Frederic).

A female specimen in the Nat. Mus. Coll., collected by Mr. O. Heideman, and a male in my own, are before me. Unlike any other species. The pale yellow color of the head, thorax and base of forewing gives this insect a characteristic appearance. The somewhat moddled appearance of the remainder of the forewing resembles *chalcofrontella*, var. *fumerella*, but is paler.

8. **H. crassicornella** n. sp. (Plate II, fig. 16.)—Palpi rather robust, terminal joint three-fourths the length of the preceding, gray, rather densely sprinkled externally with dark fuscous, lower margin and apex of second joint paler. Antennæ robust, rather deeply excised (male) above the base, with a large conical scale tuft, ochreous above shading to fuscous beneath, ciliate, cilia  $\frac{1}{2}$ . Head gray, suffused with dark fuscous. Thorax grayish-fuscous anteriorly with a blackish-brown transverse line behind the anterior margin, which extends upon the patagia; posterior two-thirds a sordid ochreous, dusted with gray. Forewings rather wide, ground color ashy-gray, overlaid in varying density with dark fuscous, broad scales, interspersed with narrow, hair-like pale scales; the dark scales are aggregated into irregular patches here and there, especially along the costal margin; before the middle and close to the dorsal margin are two short lines, converging into a point towards the base, between these the ground color is rather pale, immediately behind the base of this triangle the wing is speckled with dark scales, first discal spot at two-fifths, large and distinct; at the end of the cell are two very distinct, somewhat remote spots connected by a fine black line, the lower one of these spots is triangular with apex directed towards the base, in the apical portion of the wing is a strongly angulated line, a series of four large spots along the base of costal cilia, some less defined ones along base of dorsal cilia. Cilia gray, with about three pale, not very distinct, longitudinal lines in outer half, the outermost of these lines occupies the outer margin of the cilia. Hindwings about 1 (?); fuscous; cilia under 1, gray, with pale basal line. Abdomen pale grayish-fuscous beneath, anal bush the same. Legs dark gray, anterior and middle spotted with blackish, posterior tibia at base and oblique band at middle exteriorly, whitish; tarsal joints slightly paler at apex. Expansion 15.0 mm., 0.6 inch.

*Hab.*—Florida.

A unique male specimen, simply labeled "Florida," in the Nat. Mus. Coll. Very distinct and unlike any other. The antennæ—male at least—are very robust, the wing markings quite peculiar.

9. *H. modestella* Clem.—“Forewings fuscous, the basal portion of the wing paler and shining, and has a faint grayish hue; in the middle of the wing is a dark fuscous spot. Antennæ, head and labial palpi fuscous.” The above very short description by Dr. Clemens needs amplification. Labial palpi long and slender; head and thorax grayish, speckled with fuscous. Forewings relatively wide, the basal third limited externally by an angulated line, the dorsal extremity of which is nearer the base than the costal end, the summit of the angle nearer to the costa; this space is grayish white, shining, dusted with, and especially along the margins, dark fuscous-brown, an ill-defined black spot before the summit of the angulated line, remainder of wing dark gray, densely overlaid with dark fuscous, especially in costal half of wing; a dark spot before the middle of wing just beyond summit of angulated line, two ill-defined spots at end of cell; the apical part of the wing is slightly sprinkled with whitish scales; cilia gray, sprinkled with fuscous. Hindwings not quite 1, pale fuscous, cilia paler. Abdomen fuscous. Legs grayish fuscous; hind tibia with an oblique, whitish, median band, tarsal joints paler at apex. Expansion 15.0–16.0 mm., 0.6–0.64 inch.

*Hab.*—Atlantic States.

The type in fairly good condition in the collection of the Amer. Entom. Society, Philadelphia, is a female, which I have carefully compared with a specimen in my collection, also a female. I have seen no male, and the presumption that the male antennæ are excised above the basal joint rests entirely on the fact that Clemens placed it in his genus *Holcocera*—antennæ excised above the basal joint. Mr. Busck's statement\* that this species is identical with *Blastobasis nubilella* Zell., and *Holocera glandulella* Riley, is erroneous. The last two named refer to one species and belong to the genus *Valentinia* Wlsh.

10. *H. chalcofrontella* Clem. (Plate II, figs. 17, 17a-d.)—Head, basal joint of antennæ and palpi, sordid yellowish, latter long, recurved, third joint scarcely shorter than the second, the latter externally except at tip, the terminal one entirely, thickly dusted with dark fuscous. Stalk of antennæ fuscous, except at its base; excised above basal joint with conical scale tuft and shortly ciliate in the male. Thorax sordid yellow, dusted with fuscous, anteriorly purplish-fuscous. Forewings relatively wide, ground color sordid yellowish or yellowish-white, dusted with dark fuscous-brown, the dusting con-

\* Proc. Ent. Soc., Wash., Vol. V, p. 213.

densed into spots and blotches, an elongated patch at basal part of costa, an irregular spot at one-third, a larger one at three-fifths and another smaller one at about three-fourths of costa, from the latter begins a strongly curved or subangulated line in apical part of wing which ends in a spot on the dorsal margin beneath the end of cell; from the second costal spot starts an irregular angulated line or fascia, which ends in a dorsal spot just before the middle, this line reaches to the very distinct first discal spot above the fold, and also another less distinct spot beneath the fold. Two well marked spots at end of cell; a row of dark spots along periapical margin which send short streaks into the basal half of the cilia; there is some condensation of the dusting along the fold, and a more or less distinct blotch on the dorsal margin near the base. Cilia yellowish-gray, with a pale line before the middle and another less distinct before the free margin. Hindwings nearly 1, obtusely pointed, yellowish-gray, dusted with fuscous and having considerable lustre; cilia pale grayish-yellow, with pale basal line. Abdomen grayish-fuscous above, grayish-ochreous beneath, especially towards the end, anal bush grayish-ochreous. Legs pale grayish-yellow, dusted and spotted with fuscous, ends of tibiae, an oblique band on posterior tibiae externally and ends of tarsal joints paler. Expansion 14.0–16.0 mm., 0.52–0.64 inch.

*Hab.*—Atlantic and probably Middle States.

The two specimens representing the types in the Clemens' collection at the Academy of Nat. History, Philadelphia, and labeled as such by Mr. Busck are not identical, the specimen bearing label 201 is the type and corresponds with the description. The other specimen marked 202 and marked light variety, corresponds rather with *modestella* Clem.

I have bred this species in considerable number from the fruit racems of sumach—*Rhus typhosa*—collected end of July. The imagines appearing from middle to end of the following June. It is my opinion that the larvæ is predaceous on other larvæ.

There are several variations from the typical form which require special mention.

Var. *minorella*. (Plate II, fig. 17e.)

A somewhat smaller form, of which six specimens are before me, four in the Nat. Mus. Coll. and two in the collection of Mr. W. D. Kearfott. They all bear the label "Lewisburg, Pa.," bred from chestnut burrs. Four of the specimens have the dark dusting of the forewings much more dif-

fused, whereby the distinct spots and blotches of the typical form become more or less obliterated. Discal spot and two at end of cell distinct, a small spot of the pale yellow ground color immediately before the lower spot at end of cell. Two of the specimens—Mr. Kearfott's—have the dusting less diffused, in fact are lighter than typical specimens. The wings in this variety appears to be relatively narrower than in the former. It may prove a distinct species. Expansion 13.0–15.0 mm., 0.52–0.6 inch.

**Var. *fumerella*.**

Differs from the typical form by its general dark coloration. Head, basal joint of antennæ, palpi and thorax sordid, grayish-ochreous, dusted and speckled more or less densely with fuscous. Forewings grayish-fuscous; markings as in the typical form. The ground color in some specimens has a slight ochreous tinge. Expanse 17.0–18.5 mm., 0.68–0.74 inch.

Have bred this form likewise from the fruit racems of sumach. It is distinctly larger in size than the typical form, wings relatively broader. Rubbed or flown specimens might be confounded with *H. purpureocomella*, but in the latter species, aside from the absence of markings of forewings, the head, thorax, antennæ and palpi are grayish-fuscous.

**Var. *quisquiliella* Zell.**

Differs from the typical form by its more elongate and pointed forewings, its relatively narrower hindwings; dusting of forewings the same, but more suffused; appearance of insect more gray with a pale yellowish tinge—possibly due to fading: From *minorella* by its larger size, different wing form and less diffused fuscous dusting. From *fumerella* by its decidedly narrower wings, smaller size and paler coloration. Expanse 17.0–18.0 mm., 0.68–0.72 inch.

*Hab.*—Tex. (Dallas).

I have examined the type specimens in Cambridge Museum. Three of these bear Zeller's green labels, number 1712:—Dallas, Texas Boll. In all of these veins 3 + 4 are stemmed, 5 arising out of the stem.



11. **H. confluentella** n. sp. (Plate II, fig. 18.)—Head, basal joint of antennæ and palpi, yellowish-white, the latter long and slender, terminal joint three-fourths the length of second, the latter densely dusted with dark fuscous within and without, the terminal joint moderately dusted toward the apex without, scarcely at all within. Antennæ slender in both sexes, basal joint dusted with fuscous, stalk pale grayish-fuscous, deeply excised above the base and ciliate in the male, cilia nearly 1. Thorax yellowish-white, more or less densely dusted with purplish-fuscous, especially on the disc, and like the head with a certain metallic lustre. Forewings of moderate width, pointed, ground color white, dusting and markings deep purple-brown; a sharply angulated dark brown fascia at one-third, the summit of the angle is somewhat quadrangular and close above the fold, before this fascia the dusting is slight, but increases in density towards the base, outwardly the fascia shades gradually into the median space in about equal width, but is slightly interrupted just about the middle of the wing, and is equidistant from the base at the wing margins; a large semi-circular costal spot at three-fifths, ill-defined towards the disc; first discal spot obsolete, or rather obscured by the fascia, two spots at end of cell distinct, subconfluent, a rather distinct spot on the dorsal margin just beyond the lower spot at end of cell and more or less distinctly connected with it, a sharply angulated line in apical part of wing, the costal end of which ends in a costal spot beyond the end of cell; a zig-zag line along circum-apical margin; cilia gray, with scattered white and brown scales in basal portion, and three or four indistinct paler lines outwardly. Hindwings under 1, gray, dusted with fuscous, rather pointed; cilia nearly 1, gray, with pale basal line. Underside of wings fuscous, especially the anterior. Abdomen grayish-fuscous. Legs densely dusted with dark brown; posterior tibiae with oblique median band and apex and apices of tarsal joints whitish. Expanse 14.0–15.0 mm., 0.56–0.6 inch.

*Hab.*—Penn. (Hazleton); Central N. Y., June; Mass. (Cohasset), July.

A very distinct species, very closely resembling *H. chalcfrontella* in its markings, but differs by the white ground color of forewings, the deeper excision and larger cilia of male antennæ and the somewhat more pointed wings. Three specimens in my collection, my specimen was taken at electric light June, 1902, one specimen in the Nat. Mus. Coll.

12. **H. busekiella** n. sp. (Plate II, fig. 19.)—Palpi long, recurved, longer and more slender in the female than in the male, second joint of latter nearly twice the thickness of the terminal joint, and roughened beneath with brown scales; grayish-white, more or less densely—especially in the male—dusted with brown, less so on the upper

edge and apical portion of second and basal portion of third joint. Head grayish-white, speckled with brown scales, vertex fuscous in middle, face faintly tinged with yellow. Haustellum long and scaly at base in the male, apparently obsolete in the female. Basal joint of antennæ nearly twice as long than wide, grayish-white, speckled with brown, pecten long, pale gray, shaft pale fuscous-brown, rather deeply excised above the base in the male, tuft subtruncate, denticulate, cilia less than  $\frac{1}{2}$ . Thorax grayish-white, speckled with brown, more densely so on anterior part of patagia and on the disc; anterior margin grayish-ochreous, behind it on each side, is a patch of blackish scales. Forewings elongate, pointed, costa slightly retuse along middle two-fourths, slightly depressed towards the apex, dorsal margin evenly curved; ground color white, dusted with dark brown and ferruginous, the latter predominating in basal, the former in apical half of wing; the dusting condensed as follows; basal part of extreme costa dark brown, near the base is a subcostal, ferruginous cloud, and within it a fine, more or less interrupted, black line, a similar line above and another beneath the fold in basal third, dorsal portion of the latter, near the base, more densely dusted with brown; at about one-third of the costa is a dark ferruginous spot, from which precede an irregularly curved, pale ferruginous fascia which reaches the dorsal margin a little beyond one-third, externally it fades gradually into the ground color, while towards the base project several dentiform processes, in the fascia and above the fold is a bright ferruginous spot, and a little beyond and above a second one, a pale ferruginous line extends into the median space above the fold, immediately beyond the middle is an oblique dark brown costal spot, extending toward but not attaining the fold, below its dorsal extremity and below the fold is a dark line, beyond the costal spot are some blackish dots, two moderately large spots at end of cell, and besides these a rather large whitish-brown costal and dorsal spot, and between these an acutely angulated line; periapical margin with a row of subconfluent blackish spots; cilia grayish, with four or five ill-defined pale lines; underside fuscous-brown. Hindwings nearly as wide as the forewings, costa slightly retuse in apical half, outer half of dorsal margin evenly curved to apex, the latter obtuse; pale yellowish-fuscous, with a faint brassy tinge; cilia under 1, grayish, with darker lines in outer half, yellowish towards the base with pale basal line. Abdomen pale grayish-fuscous, anal bush grayish-white, segments edged with black posteriorly and fringed with grayish-white scales; ovipositor of female exerted, short. Under-side of body silvery white, somewhat dusted with pale fuscous. Legs white, suffused, especially on the outer side with dark fuscous; hair-brush of posterior tibiæ grayish-white. Expansion 16.-0 mm., 0.66-0.8 inch.

*Hab.*—Md. (Plummer's Island), July and August, 1903.

Six males and one female in the Nat. Mus. Coll., collected by Mr. August Busck, and to whom it gives me pleasure to dedicate this very interesting addition to our fauna.

The above description as far as coloration of wings concerns was taken from a male. The female, which appears to be somewhat rubbed, presents an almost altogether different appearance, with scarcerly a trace of ferruginous coloring; a suffused grayish-fuscous, a trifle darker along both margins and apical portion; a fine more or less interrupted black line in the fold, edged above by whitish scales, some short, blackish lines in basal third near each margin; no evidence of a fascia, the discal spots of the male are replaced by some irregular blackish dots; spots at end of cell distinct. Hindwings darker, with very little lustre. Both wings are relatively wider than in the male, it expands 20.0 mm.

The coloration and pattern of marking of the forewing in the ♂♂. appears to be variable in intensity and extent. Vein 3 + 4 of hindwing connate or very short stemmed, in one wing at least, separate; vein 5 free in all.

### 13. *H. sciaphilella* Zell.

Dr. Zeller describes this species as follows:

"Alis ant cinereis, area basali postice abrupta macsulaque costæ triangula interins albido—marginata nigricantibus, pari punctorum supra angulum internum nigra. ♂."

"Head and thorax gray, somewhat shining. Antennæ gray, excised above the basal joint, excision with obliquely truncated scale tuft. Palpi as long as the thorax, slender, ascending, the second joint closely scaled, grayish-fuscous, white at the apex, terminal joint half the length of the second, pale at apex. Thorax beneath white. Legs fuscous, apices of tibiæ and tarsi whitish; posterior tibiæ compressed, both edges with fuscous hairs, apices and a white oblique spot about the middle externally, white, spines white. Abdomen short, gray, anal bush whitish. Forewings three and one-half lines long, rather narrow, of about equal width to tornus. Ground color pale gray, thinly dusted with blackish scales, basal fifth blackish, terminating in a straight, though not sharply defined line, before the middle is a large triangular costal spot, sharply defined and edged with white towards the base, attaining the fold, ill-defined externally, opposite to this is an ill-defined dorsal spot, forming thus an angulated though interrupted fascia, the angle resting upon the fold and the fascia becoming narrower towards

the dorsal margin and margined with white in its costal portion ; two dark spots at end of cell and a nebulous spot on dorsal margin beneath ; cilia gray. Hindwings narrower than the forewings, not acutely pointed ; cilia gray with yellowish tint, with yellowish basal line."

Identical with *H. triangularisella* Ch. Have examined both types in the Cambridge Museum, and there is no doubt about their identity. Zeller's type came from Texas, while Chambers' came from Kentucky. The latter is an unspread specimen, type label 1550 in Chambers' handwriting. The wings of the left side are wanting.

Zeller's type of *sciaphilella*, a male in good condition, presents a peculiar dimorphism of the two hind wings, left hindwing eight veins, 3 + 4 short stemmed, 5 connate with stem, right hindwing seven veins—*Blastobasis*, this then very readily explains the confusion hitherto existing as to the position of this species. According to the law that the presence of a quality is dominant over its absence ; or, that a retrogression or retarded condition is recessive to the more developed condition, enforces the reception of this species into the genus *Holcocera*.

The type bears the green label in Zeller's handwriting, number 1713, Texas, Dallas, Boll.

I add the following notes to the original description :

Palpi long, terminal joint slender, three-fourths the length of the second, the latter fuscous within and without, apex white, the terminal joint sprinkled with fuscous scales. Front grayish-white with some lustre, vertex fuscous. Basal joint of antennæ one-half longer than wide, white, dusted with fuscous, pecten long, fuscous ; shaft of antennæ fuscous above, paler beneath, excised above the base, tuft within the excision truncate, scarcely pubescent. Thorax grayish-white suffused with fuscous, particularly on the disc, with some faint lustre. Forewings moderately wide, not acutely pointed ; ground color pale grayish-white, speckled and marked with fuscous-brown, having a purplish lustre, as follows : Base, limited externally by a nearly straight line, followed by a white fascia, narrowed almost to a point on the costa and angulated externally, summit of angle in the fold, shaded in costal portion by a very pronounced nearly triangular patch, which becomes effaced outwardly ; a much less pronounced opposite dorsal patch ; no spots in middle space, two spots at end of cell, a pronounced patch on dorsal margin below end of cell, and a larger but less distinct one a little beyond the end of cell, on costal margin ;

between these two latter is an ill-defined curved fascia in apical part; cilia pale gray, speckled with fuscous scales in basal portion. Hindwings nearly 1, costa retuse in apical third, grayish-white, dusted with fuscous; cilia grayish-white, 1. Abdomen grayish-fuscous, anal bush grayish-white. Underside of body yellowish-white, with some sheen. Legs white, shining, suffused with fuscous externally, tibiæ at each end and median band and apices of tarsal joints whitish.

14. **H. plagiatella** n. sp. (Plate III, fig. 20.).—Head and basal joint of antennæ sordid white, speckled and dusted with fuscous. Palpi long and slender, reaching considerably above the head, dirty white, speckled with fuscous, especially the second joint without, except its extreme apex, terminal joint about three-fourths the length of the preceding one. Shaft of antennæ pale fuscous, deeply excised above basal joint with scale tuft, cilia extremely short. Thorax sordid white, rather densely dusted with fuscous; patagia pale, fuscous anteriorly. Forewings rather narrow, pointed, costa slightly retuse along middle two-fourths; a large quadrate basal spot extending from costa to fold, fuscous, another rather large spot at two-fifths between costa and fold, but attaining neither, a few small spots of fuscous scales on the dorsal margin before the middle, two inconspicuous spots at end of cell; remainder of surface lightly dusted with fuscous scales, which become more condensed in apical part of wing, especially along the dorsal margin; cilia gray. Hindwings 1, grayish white, dusted with fuscous and with considerable lustre; cilia nearly 1, gray with pale basal line. Abdomen grayish, last five segments with a chocolate-brown transverse band; anal bush gray, underside of body silvery gray, dusted with fuscous. Legs grayish-fuscous; posterior tibiæ with a spot near the base, oblique median band and apices white. Expansion 17.5 mm., 0.7 inch.

*Hab.*—Arizona.

A single male specimen, not in first-class condition, in my collection. Easily recognized by its peculiar wing markings and the almost simple antennæ of the male, the cilia being sparse and short.

15. **H. livorella** Zell.—“Alis ant. angustis, osseo-griseis, puncto parvo infra basim costalem, majore disci ante medium parique punctorum venæ transversae nigris; post, minus longe acuminatis. ♂.”

This is the author's short Latin diagnosis. His description in German I translate in partim as follows:

Anterior part of body, as well as the slender elongated basal joint of the antennæ and the scale tuft in the excision above it, dirty bone-yellow, dusted with gray, the face somewhat whitish; shaft of antennæ



thin, setiform, gray. Palpi very pale, as long as the thorax, curved upwards, slender, gradually pointed; third joint about one-half the length of the second. Legs concolorous with the thorax, only the anterior somewhat fuscous anteriorly; posterior tibiæ slender, feebly hairy above; feet not spotted. Abdomen short, blackish-gray, anal bush paler. Forewings three lines long, narrow, not widened, somewhat rounded at its narrowest end, same color as the thorax. Very near the base of the costal margin is a small, not very conspicuous blackish spot, a much larger and conspicuous spot in the median space before the middle, nearer the fold than the costal margin, a pair of blackish spots at end of cell, close together, above these is a short, not very distinct, dark line. Cilia pale gray. Hindwings to the middle, but little narrower than the forewings thence gradually narrowed to a distinct, though not elongated point, very pale gray, with some lustre, paler towards the base. Cilia pale yellowish. Underside of forewings unicolorous, gray; dorsal margin paler. Hindwings same color as upper side, somewhat darker along the costal margin.

*Hab.*—Texas.

Two males in Cambridge Museum labeled *livorella*, but not in Zeller's handwriting, Dallas, Tex. Boll. Zeller states (palpi): "third joint one-half the length of the second," whereas it is nearly as long. Antennæ deeply excised above the base, excision with truncated tuft, cilia short. The forewings can hardly be called narrow, costa somewhat arched from the base, white, lightly dusted with fuscous, the latter more condensed in basal portion with an ill-defined dash above the fold. The subcostal spot near the base, mentioned in the description is not noticeable, unless it is the supralpical dash mentioned here; beyond the darker basal dusting is a relatively wide irregular fascia, shaded externally, especially in costal portion by some dusting. Hindwing as wide as the forewing, pointed; cilia under 1. Abdominal segments light fuscous, fringed with silvery white scales, anal bush white. Veins 3+4 of hindwing stemmed, 5 out of stem (in one wing apparently free).

16. **H. iceryæella** Riley. (Plate III, fig. 21.)—Palpi long, recurved, second joint thickened towards the apex, terminal slender, pointed, much shorter than the preceding joint; grayish-white sprinkled with fuscous, apex of second, and base and apex of third, paler. Head and basal portion of antennæ sordid white, basal joint broad, pecten setaceous, shaft grayish-fuscous outwardly, excised above basal joint



in the male. Thorax grayish-white, more or less dusted with fuscous. Forewings moderately wide, costa slightly retuse beyond the middle, acutely pointed; ground color white, more or less densely dusted with fuscous-brown, the dusting condensed into patches, so arranged as to leave an oblique fascia of the ground color, commencing at the costa at one-third and extending to the dorsal margin at two-fifths; before this fascia is a large nebulous patch on the dorsal margin, enclosing—sometimes—a large white spot resting on the margin, the costal portion of the fascia is heavily shaded without, before the middle is a small discal spot and two others, distinct, at end of cell; beyond these are several small patches within the dorsal margin, and a row of spots along the base of the cilia, the latter grayish-white. Hindwings nearly as wide as the forewings, costa scarcely retuse, acutely pointed, silvery white, lightly dusted with fuscous; cilia 1. Abdomen sordid white, dusted with fuscous. Underside of body sordid white. Legs white, dusted with fuscous, ends of tibiae and median band, as well as apices of tarsal joints, paler. Expansion 13.0–16.0 mm., 0.52–0.64 inch.

*Hab.*—Cal. (Pasadena, Alameda County, Los Angeles).

Introduced from Australia. Larva lives on *Icerya* and *Leuconium oleæ*. This is the type of *Cynotes* Wlsh. Veins 3 + 4 of hindwing short stemmed or connate, 5 generally free or subconnate with stem of 3 + 4.

#### 17. *H. maligemmella* Murtf.

This species, which at the time of its appearance, gave rise to the apprehension of becoming an orchard pest, is described by Miss Murtfeldt as follows:

“Alar expanse 14 to 15 mm. General color satiny brownish buff with slight opalescence, and more or less leaden shaded on thorax, wings and body. Head buff, densely and somewhat shaggily scaled. Eyes prominent, purple black. Antennæ two-thirds as long as wings; basal joint conspicuously long and stout; second joint also long, with the inner side peculiarly excavated. Palpi (labial) long, recurved with short, almost concealed basal joint, long slightly thickened second joint and slender, tapering terminal. Thorax broad; patagia rather large, all anteriorly bordered with leaden gray. Forewings varying in color from almost clear buff to buff so interspersed with the darker scales as to produce a ‘smudged’ effect; a small but distinct black discal dot and a group of five smaller, less clearly defined ones at the base of the terminal third, constitute the ornamentation. Hindwings rather broad, somewhat paler and more lustrous than the primaries. Fringes concolorous with wing surface, also varying in intensity of the

dark shadings. Body yellowish-gray with bright buff anal tuft. Legs agreeing in color with under surface, tibiae, especially of hinder pair, densely clothed with long but appressed hairs."

*Hab.*—Missouri.

The larva, about 8 mm. long when full grown, is yellowish-green, head and dorsal part of first segment black, eats into the buds of both flowers and leaves of apple.

A cotype specimen in the Nat. Mus. Coll. scarcely agrees with the description, and still less with the figure as given by Miss Murtfeldt, the latter evidently had been reproduced from a photograph. This specimen presents a basal space, sharply limited externally by an angulated line, the summit of which is a little above the fold. This space is paler, uniformly grayish-fuscous; immediately beyond it and a little above the fold is a dark spot; remainder of wing mottled with fuscous, two spots at end of cell. It rather strongly resembles *Hol. modestella* Clem., but lacks the dark patch in the basal space.

Since the foregoing has been written I have been enabled through the courtesy of Prof. Alex. D. MacGillivray, of Cornell University, to examine the apparently unique type-specimen now the property of the above-mentioned institution. It is a male, faded and in poor condition, right forewing wanting, labial palpi ditto. Head ochreous. Antennæ moderately thick, excision above the basal joint not profound; cilia fully  $\frac{1}{2}$ . The "leaden-gay" border of anterior thoracic margin is rather purplish-brown, well marked, and rather behind the anterior margin, the latter being like the remainder of the thorax, ochreous. Forewings rather short and broad, very obtusely pointed, without paler basal space; sordid ochreous-gray, suffused with somewhat darker patches, discal spot small, though distinct; two spots at end of cell, the lower one larger, triangular, and distinct, in line with these two spots, equidistant, and above is another small spot, a trifle beyond these and within each margin is another small dot. These five spots are spoken of in the description as the base of the apical third, and are distinctly recognizable. Hindwings almost as wide as the forewings, grayish dusted

with fuscous and a pale yellowish tint, some lustre; cilia under 1. Abdomen ochreous-fuscous; anal bush grayish-ochreous. Underside of body and legs ochreous, dusted with fuscous. Expansion 14.0 mm., 0.56 inch.

The specimen has the following labels: "Type, *Holcocera maligeminella* Murt., *Nothris maligemmella* Murt.; Columbia Mo. 12, July 189; Stedman Coll."

Veins 3+4 of hindwing short stemmed, 5 subconnate with stem. The forewings of this species are more obtuse than in any other of our North American Blastobasidæ.

18. *H. gilbociliella* Clem.

Dr. Clemens describes this species very shortly as follows:

"Forewings pale yellow, with a dark dot in the middle of the wing, and slightly dusted with fuscous towards the apex. Hindwings pale ochreous-fuscous. Antennæ dark ochreous. Head and tibial palpi yellowish. The forewings of the female are more dusted with fuscous than those of the male."

The antennæ are thickened towards the base. In the male ciliate, cilia a trifle over  $\frac{1}{2}$ , excision not deep, scale tuft obliquely truncate. Labial palpi long and slender, terminal joint of nearly equal thickness, pointed, about three-fourths the length of second joint. Hindwings as wide as the forewings. Anal bush and legs pale yellowish or sordid white. Expansion 11.0–15.0 mm., 0.44–0.6 inch.

*Hab.*—Atlantic States.

The type, a male, in the Clemens' collection at the Acad. of Nat. Sciences, Philadelphia, in good condition. A female specimen in the Nat. Mus. Collection, three specimens in my own. The dark discal spot in middle of forewing is obsolete in some specimens. Might be confounded with *H. melanostriatella*, but aside from the black subcostal streak the antennæ are not excised in the male in the latter species.

19. *H. funebra* n. sp.—Palpi moderately robust, not reaching above the head, second joint dark fuscous-brown, somewhat thickened towards the apex, terminal joint attenuated towards the apex, two-thirds (♂) or three-fourths (♀) the length of the second, fuscous, speckled with whitish within. Antennæ of moderate thickness, fuscous-brown, with a faint sheen, slightly pubescent and denticulate within, not excised above the base in the male. Head and thorax fus-

cous, intermixed with grayish scales, with a faint greenish cupreous lustre. Forewings of moderate width, costa approximately straight for two-thirds its length, thence gradually depressed towards the obtusely pointed apex; ground color fuscous, suffused with brown and intermixed with hair-like pale grayish scales, with a purple-brassy lustre in certain lights; the darker color prevails, especially in costal and apical portion of wing, and along the dorsal margin; before the middle and a little above the fold is a dark, elongate spot, two others, larger and well marked at end of cell; cilia gray, sprinkled in basal half with fuscous and grayish scales. Hindwings as wide as the forewings, costal margin depressed from one-third its length, not acutely pointed, fuscous, especially towards the apex; cilia grayish-fuscous, a tifle over 1. Abdomen above fuscous, anal bush concolorous, underside of body grayish-fuscous. Legs grayish, more or less suffused with dark brown, tarsal joints slightly paler at apex. Underside of fore- and hindwings dark fuscous. Vein 5 of hindwing connate with stem of 3+4, the latter one-half the length of vein 4. Expansion 12.0-15.0 mm., 0.48-0.6 inch.

*Hab.*—Md. (Plummer's Island), Pa. (Hazleton).

Four specimens in the Nat. Mus. Coll. collected by Mr. A. Busck, May, June and July, 1903. A specimen, taken by the writer at light, is without the spots on the forewing. Not distinguishable from *H. purpurocomella* except by the male antennæ, which are not excised, very close to *inconspicua* Wlsh.

Var. **reductella**.

Two specimens in Mr. Kearfott's collection differ from the typical form as follows: Larger size 16.0 and 17.0 mm.; somewhat paler; front grayish-ochreous; head and thorax with scarcely any metallic lustre, the basal third of forewings appears, especially outwardly, a trifle paler; underside of body and legs much less suffused with dark fuscous. The wings relatively a trifle wider, and the hindwings more obtuse.

*Hab.*—Manitoba (Aweme).

The variability in the relative position of veins 3, 4+5 of the hindwings, find an apt illustration in these two specimens; one specimen has 3+4 scarcely stemmed and almost connate with 5; in the second specimen, on the right side, 3+4 short stemmed, 5 arising from the stem; left side, 3+4 longer stemmed, 5 connate with stem. To judge from the description this form seems closely related to *stygna* Wlsh.

20. **H. inconspicua** Wlsh.—“Antennæ pale grayish-brown. Palpi grayish-brown, darkened externally. Head and thorax grayish-brown. Forewings grayish-brown through a profuse dusting, amounting to an almost entire suffusion of this color upon a pale cinereous ground; the only marking indicated is a slight and obscure transverse shade at two-fifths from the base and a reduplicated brownish-fuscous spot at the end of the cell; cilia pale grayish-brown. Alar expanse 13-14 mm.

“Hindwings shining, purplish-gray; cilia yellowish-brown. Abdomen shining, brownish-gray. Legs pale yellowish-brown. Type in Mus. Walsingham.”

Paratype, male, Nat. Mus. Coll.

*Hab.*—Shasta County (Hatchet Creek), California, July 14-17, 1871.

An obscure and ill-defined form. Have examined the specimen in Nat. Mus. Coll. Veins 3 + 4 of hindwing long stemmed, 5 out of stem of the latter, nearly unicolorous, the spots at end of cell as well as the obscure transverse shade, scarcely discernable. Appears to differ from *funebra* in the absence of the metallic sheen and first discal spot and the lighter semi-transparent color of the hindwings.

21. **H. stygna** Wlsh.—“Antennæ pectinate, but not notched; purplish-gray. Palpi purplish-gray. Head and thorax purplish-gray, the tegulæ with a distinct coppery tinge. Forewings tawny vinous gray, a purplish sheen strongly expressed at the base of the costa, the middle and outer half of the costa slightly darker than the remainder of the wing; the commencement of this dark shading extends across the wing to the dorsum, leaving the preceding space outwardly angulate at the middle, and a paler or more grayish shade; a reduplicated shade-spot at the outer end of the cell is very obscurely indicated; cilia brownish gray, with a slight tawny suffusion. Hindwings brownish-gray; cilia pale buff-brownish. Abdomen (missing). Legs brownish-gray, with broad tawny tarsal bands. Alar expanse 18 mm. Type, male, in the author's collection;”

*Hab.*—Mendocino County, north of Mendocino City, Calif. (close to the town), June 3-5, 1871. Unique.

The author compares this species with *H. purpurocomella* Clem. To judge from the description it should very closely resemble *Holcocera dives*, var. *basipallidella*; the basal space in *H. purpurocomella* is not paler and angulated externally.

22. **H. boreasella** n. sp. (Plate III, fig. 22.)—Palpi moderate, terminal joint one-half ( $\sigma$ ) or three-fifths ( $\varphi$ ) the length of the second; ochreous, suffused, especially externally with fuscous. Antennæ slender, grayish-fuscous, feebly denticulated beneath, not excised above the basal joint in the male; basal joint one and one-half as long as wide, ochreous, pecten gray. Head grayish-ochreous, finely speckled with fuscous. Thorax grayish-ochreous, suffused anteriorly and on the disc with purplish-fuscous. Forewings rather broad, especially in the male, costal margin nearly straight from about the basal third to apical fourth, equally narrowed from both margins to the rather acute apex; ground color sordid ochreous, streaked and somewhat diffused with purplish-fuscous, speckled with white scales, the latter forming a somewhat elongate triangular patch in the basal space, the latter limited at one-third by a strongly angulated line which is shaded outwardly, especially in costal portion, with dark purplish-fuscous, in this space, the white scales predominate, especially in the dorso-apical portion, and form a white line in the fold edged with fuscous scales, an indistinct short line of dark scales below the costa, immediately beyond the angle of the angulated line is a distinct, slightly elongate dark spot, and at the end of the cell two equally distinct spots, between the former and the lower spot at end of cell is a row of white scales edged with fuscous scales, and between this and the costal margin is a similar one, between the latter and the costal margin is a dark line which reaches the angulated fascia, a white line edged with fuscous in the fold, becoming less distinct outwardly, the suffusion with purplish-fuscous is more marked in costal half and apical part of wing, and more pronounced in the male, the white scales are more evident along outer portion of fold and in apical part of wing; cilia ochreous, sprinkled with white and a few fuscous scales. Hindwings as wide as the forewing, more obtusely pointed in the male, costal margin scarcely retuse, grayish with ochreous tinge and slightly dusted with fuscous; cilia 1, grayish-ochreous, abdomen ochreous-fuscous, anal bush ochreous. Underside of body and legs grayish-ochreous, suffused, especially the legs with fuscous. Expansion 18.0–19.0 mm., 0.72–0.76 inch.

*Hab.*—N. H. (Webster), Canada, (Montreal).

One male and four females in my collection. Very close to *nucella*, where comparative reference to this species will be made. Veins 3 + 4 of hindwing stemmed, stem variable in length, 5 out of stem, or connate with it; in one specimen free.

23. **H. nucella** Wlsh. (Plate III, fig. 23.)—"Antennæ brownish-fuscous; basal joint yellowish-brown. Palpi yellowish-brown, shaded with brownish-fuscous externally. Head and thorax yellowish-brown.



Forewings, male, yellowish-brown, more or less suffused with purplish-fuscous, especially along the costa and on the outer portion of the wing, an outwardly bowed transverse shade of the same indicated at one-third from the base; at the end of the cell is a reduplicated fuscous spot; cilia pale yellowish-brown; female, with the fuscous shading having a purplish tinge, and being very much thicker and more generally distributed than in the male (in some male specimens the suffusion is almost entirely absent), the basal third of the wing and a patch at the lower extremity of the cell alone exhibiting the paler ground color. Hindwings pale brownish-gray; cilia yellowish-brown. Abdomen and legs pale brownish-ochreous. Alar expanse 16-18 mm."

*Hab.*—Colorado, Loveland, 5000 feet, July and Sept., 1891; Denver.

The above is Lord Walsingham's description. Cotypes in the Nat. Mus. Coll. have been examined by the writer. This is the type of *Catacrypsis* Wlsh. The palpi are equal in both sexes. Hindwings as wide as the forewings, costal margin nearly straight, depressed towards the apex, the latter rather obtuse. Veins 3 + 4 of hindwing long stemmed, 5 from about the middle of the stem.

The peculiar ochreous-brown color distinguishes this species from any other of our North American forms except *boreasella*, from which it is distinguished by its smaller size and the absence of longitudinal lines and the patch of whitish scales in the basal space. From *H. nana* it differs at once by its much larger size.

24. **H. nana** n. sp. (Plate III, fig. 24.)—Head, basal joint of antennæ, thorax, and palpi pale ochreous-white, the latter long and slender, extending considerably above the front, terminal joint slender, nearly as long as the preceding, dusted externally, especially the terminal joint, with fuscous. Antennal shaft grayish, dusted with fuscous. Forewings rather narrow, costal margin slightly retuse about the middle third, pale ochreous, suffused in patches with fuscous having a faint purple lustre, as follows: a large, ill-defined oval patch in basal fifth, a triangular patch on both the costal and dorsal margins at one-fifth, curved outwardly and forming an ill-defined angulated fascia, on the inner margin of the costal spot, and above the middle is a well marked blackish spot, two similar spots at end of cell, a patch just beyond the middle of the costa and one at about four-fifths, a patch on the dorsal margin, just beyond the end of cell, a series of dashes along the base of the cilia, apical portion of wing more or less densely dusted with pale fuscous; a dark purple-brown spot at base of costa, extreme

costa of the same color; cilia grayish-ochreous, sprinkled with fuscous scales, the latter forming two or three ill-defined lines. Hindwings as wide as the forewings in basal third, costal margin strongly retuse beyond the middle, apex pointed, grayish, dusted with fuscous; cilia gray, over 1. Abdomen (wanting); underside of thorax and legs yellowish-white, dusted with fuscous, apices of tibiae and tarsal joints pale.

*Hab.*—Texas (Brownsville). The type, probably female, in the Nat. Mus. Coll.

In coloration this species resembles somewhat *chalcofrontella*, but aside from size is of different wing shape, I place it here provisionally. Veins  $3+4$  of hindwing long stemmed, 5 out of stem of  $3+4$ .

25. **H. elyella** n. sp. (Plate III, fig. 25).—Palpi white, more or less densely suffused with dark brown, except apex of second joint, long, and especially the terminal joint, slender, the latter about two-thirds the length of the second. Head sordid white, front smooth scaled, somewhat shining, vertex slightly rough. Basal joint of antennae one-half longer than wide, sordid white, pecten of closeset scale like setae, gives the joint a very broad appearance, shaft light fuscous, not excised above the basal joint, finely pubescent and denticulated beneath (male). Thorax sordid white, tinged with fuscous. Forewings relatively wide, costa slightly convex from the base, a trifle retuse about the middle, not acutely pointed at the apex, dull white, lightly dusted with fuscous, markings dark fuscous-brown, as follows: extreme costal margin, especially in basal half, two streaks in basal third, one about midway between the fold and dorsal margin, the other midway between fold and costal margin, above the latter streak and connected with it near the base is a small patch, extreme base, an irregularly quadrate costal patch at one-third and a larger dorsal patch opposite to it but extending almost beyond the middle of the wing length, and enclosing an obscure spot, a well marked dark spot before the middle and nearer the costa, two equally well marked spots at end of cell, in the median space are two longitudinal streaks, one nearer the costa, the other in a line with the lower spot at end of cell, just before the later but in the fold, is a short streak or patch and a nebulous dorsal spot just beyond it, dusting more condensed in outer half of wing, margin along base of cilia dark fuscous; the latter light gray, speckled with white and fuscous scales. Hindwings as wide as the forewings, costa slightly retuse in outer half, obtusely pointed, grayish, dusted with fuscous; cilia scarcely 1, grayish-white. Abdomen above fuscous; anal bush grayish-white. Underside of body white, dusted with fuscous. Legs grayish-white, anterior and middle densely suffused, posterior dusted, with fuscous, ends of tibiae and tarsal joints paler. Expanse 13.0–16.0 mm., 0.52–0.64 inch.

*Hab.*—Conn. (East River), Chas. R. Ely; Md. (Plummer's Island), A. Busck; Md. (Frederick); N. J. (Essex County), W. D. Kearfott.

Fifteen specimens in my own collection and two in the Nat. Mus. Coll.—all males—are before me. All were collected in July and August. Most of the specimens are more or less worn or rubbed, and in these the markings will fall short of the above description and the figure. It gives me pleasure to name this very distinct species after Mr. Charles R. Ely, of Washington, D. C., who collected all my Connecticut material, and to whom I consider myself under great obligation for this and much other material. In thirty hindwings examined vein 5 was free in six, in these the stem of  $3 + 4$  was short, among the remaining 5 was connate with the stem, or in a few instances arose from the latter near its origin.

26. **H. insulatella** n. sp. (Plate III, fig. 26).—Palpi, head, basal joint of antennæ and thorax sordid white, lightly dusted with pale fuscous. Palpi rather short and stout, the second joint more densely dusted externally, nearly twice the length of the terminal joint, the latter acutely pointed, scarcely dusted at all. Basal joint of antennæ nearly twice as long as wide, feebly curved, pecten of long, not closely set setæ, stalk slender, simple, grayish-fuscous, scarcely pubescent ( $\sigma^7$ ). Posterior margin of head more distinctly whitish. Thorax anteriorly, except the patagia, infusate. Forewings elongate, acutely pointed, costa approximately straight from the base to the apical fourth; ground color white, lightly suffused with dark fuscous, the latter prevailing more in the costal and apical portions of the wing, at one-third from the base is a heavy costal spot extending somewhat backward, then sends a narrower line obliquely backward, a spot less distinct but similar to the costal one, but a little nearer the base, on the dorsal margin, extending slightly backward and from which proceeds a narrow curved line which with the line from the costal spot forms an acute angulated fascia, the summit of the angle is a little nearer the costa than the dorsal margin, and which, viewed from the base resembles somewhat the letter W, at the end of the cell are two large, dark fuscous spots, and between the lower one of these and the angle of the fascia is a series of four or five unequal spots, the elongate oval space, enclosed between these and the rather densely speckled subcostal space, is almost white; cilia sordid grayish-white. Hindwings as wide as the forewings, costa not retuse, depressed towards the apex, latter acute, grayish-white, lightly dusted with fuscous externally;

cilia over 1; grayish, tinged with pale yellowish towards the base. Abdomen above and beneath and anal bush yellowish-white, basal half of segments above brown. Underside of thorax silvery white. Legs white, more or less densely dusted with fuscous. Expanse 17.0 mm., 0.68 inch.

*Hab.*—Col. (Glenwood Springs), in August.

Two males in my collection.

The peculiar insulated space on the forewing distinguishes this species from any other known to the writer. Vein 5 of hindwing connate with stem of 3 + 4, latter variable in length.

27. ***H. inclusa*** n. sp. (Plate III, fig. 27.)—Palpi recurved, grayish-fuscous, the second joint somewhat incrassate towards the apex and roughened beneath with scales, upper half of inner surface whitish, third joint slender, acutely pointed, three-fourths the length of the former. Head one-half as wide as the thorax, grayish-fuscous, smooth scaled, the scales tipped with grayish-white. Antennæ slender, fuscous above, gray beneath, basal joint one-half longer than wide, pecten setaceous, as long as width of joint. Thorax fuscous with a grayish sheen. Forewings moderately wide, pointed, ground color whitish, finely speckled with dark fuscous and heavily overlaid in its outer two-thirds of costal portion with dark fuscous-brown, basal space limited externally by a very conspicuous, evenly curved fascia, of the same color, shading off gradually outwardly, this fascia begins at one-third of costal margin and ends at one-fourth of dorsum; basal portion of wing rather densely dusted with dark fuscous; immediately beyond the fascia and connected with it are two longitudinal spots, one above, the other beneath the fold, two distinct spots at end of cell, beyond these the wing is rather densely dusted and speckled with fuscous; cilia gray, dusted in basal portion with white and fuscous scales. Hindwings under 1, gradually narrowed from the base, obtusely pointed, costa retuse in outer half, gray, dusted with fuscous, especially along the margins. Abdomen above grayish fuscous, with some lustre, anal bush grayish-ochreous; beneath, dark fuscous in basal portions, gray toward the extremity. Underside of thorax dark fuscous-brown. Legs grayish, densely dusted, especially the anterior and middle with dark fuscous. Expanse 15.0 mm., 0.6 inch.

*Hab.*—Pa. (Hazleton).

A unique male, in excellent condition, taken July 20, 1904, at light. Might be confounded with *modestella*, but its appearance is different, and the antennæ are not excised above the base. The second palpal joint is considerably roughened, almost like in *Gelechia*. Veins 3 + 4 very short stemmed, vein 5 narrowly separate from stem of 3 + 4.

28. **H. simulella** n. sp. (Plate III, fig. 28.)—Palpi of moderate length and thickness, terminal joint two-thirds (male) or three-fourths the length (female), of the second; white, densely suffused with dark fuscous-brown externally, speckled with fuscous within, apex of second joint white. Head, thorax and basal joint of antennæ white, speckled with fuscous scales. Shaft of antennæ slender, brownish, paler beneath. Forewings rather narrow, costa nearly straight from the base, apex pointed; ground color white, sparsely (male) or densely (female) speckled with dark brown scales; markings pronounced, dark purple-brown, as follows; a well marked spot below the costa and very near the base, an irregular, not sharply defined, and outwardly angulated fascia, the costal portion commences at one-third, extends obliquely outward towards the fold, along which it forms a streak, the dorsal part is subquadrangular and begins at one-fourth from the base, in the basal space are two dashes, one immediately above and the other a little nearer the base, and immediately below the fold, just beyond the middle, and a trifle nearer the costal margin is a small, inconspicuous spot, and at the end of the cell two very distinct spots, midway between the discal spot and the costal margin is a blackish line which extends as far as the end of the cell, another similar line immediately below the costal margin, well marked nebulous patches in apical part of wing, giving somewhat the appearance of an outwardly convex fascia; cilia pale yellowish-gray, basal half sprinkled with fuscous scales, interspersed with white. Hindwings as wide as the forewings, not acutely pointed, costa retuse in outer half; pale gray, dusted with fuscous; cilia 1, grayish, paler towards the base with pale basal line. Abdomen above white, lightly dusted with fuscous, anal bush grayish. Underside of body and legs white, the former lightly suffused with fuscous, the latter speckled with dark brown scales, leaving a median oblique spot on posterior tibiæ externally and apices of tarsal joints white. Expanse 16.0 mm., 0.64 inch.

*Hab.*—Arizona (Williams), Texas (Fedora).

Two specimens in the Nat. Mus. Coll., and a male in my own. The latter has but one forewing left, the ground color is white with scarcely any sprinkling of dark scales, the markings less pronounced than in the female. A female specimen in my collection from Stockton, Utah, collected by Mr. T. Spalding, has the wings narrower, and the forewings are more densely sprinkled with dark fuscous scales, I refer it doubtfully to the species under consideration.

29. **H. messelinella** n. sp. (Plate III, fig. 29.)—Palpi of but moderate length, sordid white, the second joint incrassate towards the apex and roughened beneath with scales, dusted externally with fuscous, terminal joint scarcely more than half the length of preceding



one ( $\sigma$ ), not thicker at base than at the middle, pointed, thickly dusted with fuscous, except at base and extreme apex. Antennæ of moderate thickness, not excised above basal joint, latter pale yellowish; pale fuscous above, grayish beneath, obscurely denticulate and pubescent beneath. Head sordid white, speckled with fuscous scales and without lustre. Thorax sordid white, broadly margined in its entire width anteriorly with deep purple-brown. Forewings moderately wide, costa approximately straight three-fourths its length; ground color gray, sprinkled with whitish scales, the latter more aggregated in the basal third which is limited externally by a sharply angulated line, the summit of the angle much nearer the costa than the dorsal margin and limited by a distinct black spot; besides the white there are dark fuscous scales forming spots or patches, distributed as follows: a patch at base of costa, a distinct but not sharply defined spot at one-third, and a very feeble one about middle of costa, in the basal space immediately above the fold is a longitudinal dash, and immediately beneath it, but a trifle nearer the base another, and beyond it, in the fold and beginning on the angulated line another dash, on the disk are some scattered fuscous dots and dashes, two spots at end of cell; an outwardly angulated, not well defined fascia in apical part of wing, a series of dashes along base of cilia. Cilia grayish, sprinkled with fuscous scales. Underside fuscous. Hindwings as wide as forewing, costa nearly straight, slightly retuse before the somewhat obtuse apex, grayish fuscous; cilia gray with pale basal line. Abdomen above grayish-fuscous, segments fringed posteriorly with sordid white scales; anal bush sordid white. Thorax beneath fuscous, abdomen ochreous, infuscated on the sides. Legs grayish, thickly dusted with fuscous, except ends of posterior tibiæ and ends of tarsal joints. Expanse 15.0 mm., 0.6 inch.

*Hab.*—Md. (Frederick), Fla. (Hastings).

Two male specimens in good conditions in my collection. The following variety may prove a distinct species, but prefer to leave it here for the present.

**Var. *spoliatella*.**

Six specimens in my collection very closely resemble the above, but differ, by all the markings being less distinct, especially so the basal streaks, a greater gloss of forewings, the latter paler, absence of the dark purple color of anterior thoracic margin, and longer and more slender palpi. Expanse 12.0–13.0 mm., 0.48–0.52 inch.

*Hab.*—Penna. (Hazleton), N. J. (Caldwell); two specimens of the latter locality were collected by and received from Mr. W. D. Kearfott.



30. **H. morrisoni** Wlsh.—“Antennæ with moderate pecten; pale brownish-ochreous. Palpi brownish-ochreous. Head and thorax grayish-brown, with paler speckling. Forewings rather narrow, elongate, not widening outwardly; base white, with grayish-brown suffusion, especially around the margins; a brownish shade at the base of the costa, a darker streak in the basal third of the fold, diffused and diluted to the flexus; beneath it a triangular brownish-fuscous dorsal patch arising a little before the middle, directed obliquely outward and ending obtusely on the cell at about one-half the wing length; beyond it a pair of brownish-fuscous spots at the end of the cell, and a few ill-defined similar spots around the apex and termen; cilia grayish-brown. Hindwings shining, pale brownish-gray; cilia pale brownish-ochreous. Abdomen and legs pale brownish-ochreous. Alar expanse 17 mm.”

*Hab.*—Arizona. *Type.*—Male, Mus. Walsingham.

“A narrow winged species, differing much in appearance from any already described (Walsingham), and quite unlike such exponents of allied genera as I have before me.”

The above is Lord Walsingham's description with comments. I have nothing to add; unknown to me. The peculiar dorsal patch should lead to the recognition of this species.

### 31. **H. fluxella** Zell.

Described as follows:

“Minuta, antennis crassiusculis, supra articulum basalem squamis ampliatis, non excisis; alis aut cinereis, striga ante mediam fracta, albida, exterius nigricanti—marginata, puncta disci punctisque duabus geminatis vena transversa coalescentibus nigris; posticis lanceolatis.

“Agrees nearly with *H. fractilinea* in markings, but is smaller with narrow hindwings and more slender abdomen, the antennæ, however, are not excised at the base. Palpi more slender than by *fractilinea*, bend upwards, as long as the thorax, light gray dusted with fuscous externally, third joint less than one-half the length of the second, more slender and pointed. Legs pale ochreous-white; posterior tibiæ rough haired, hind tarsi pale fuscous externally, joints pale at apex. Abdomen slender, sides of posterior segments with pale yellowish hairs, anal bush of same color. Forewings two and one-half lines long, gray, darker along the margins; transverse line angulated above the fold, margined externally with dark fuscous, before it and in the fold is a small black dot, and beneath it a short dark line, and behind it, immediately above the angle, is a sharply defined black spot; two confluent spots at end of cell, and beneath these a spot on the posterior margin; a line of non-confluent black spots at base of cilia. Hindwings about one-half the width of forewings, lanceolate, sharply pointed with distinct anal angle. ♂. Texas.”

The type, numbered 1711, is in the Cambridge Museum. It bears Zeller's green label and name in his own handwriting—*Blastobasis fluxella* Z., Dallas, Texas, Boll.

The third palpal joint is certainly more than one-half the length of the second; palpi not very slender and divergent. Basal joint of antennæ broad, not longer than wide; pecten shorter than width of joint. Head and thorax sordid grayish-white, the latter purplish-brown anteriorly, this color extending across the patagia to base of costa of forewings, the latter moderately wide, not acutely pointed, base fuscous, the black dot in basal portion of fold is not evident; the angulated fascia is nearly at two-fifths the wing length, beyond the fascia, the wing is more densely dusted with fuscous, just beyond the spots at end of cell is a somewhat conspicuous costal and dorsal spot; cilia grayish-white with scattered white scales. Hindwings nearly as wide as the forewings, in basal portion, strongly narrowed towards the apex, the latter pointed; cilia a trifle over 1. Veins  $3 + 4$  long stemmed, 5 connate with stem. In a specimen in Lord Walsingham's collection vein 5 of hindwing arises out of stem of  $3 + 4$ , but as elsewhere stated, this is a variable condition and of no diagnostic value.

### 32. *H. clemensella* Ch.

Relative to this species Mr. Chambers expresses himself as follows:

"*H. chalcofrontella* Clem. is so variable a species that it is possible this may be a variety of it; but it is not one of the described varieties.

"Whitish, dusted lightly with dark purplish-brown, the dusting dense on the second joint of the palpi. There is a purplish-brown patch at the base of the costa, a small one about the middle of the costa, a small one opposite to it on the fold, a small one on the disc opposite the space between the other two and at the end of the disc, and a row of small dots around the apex at the base of the cilia. Alar expanse one-half inch. Season, August."

I have carefully examined the type in the Cambridge Museum, and have no hesitancy in pronouncing this species absolutely distinct from *chalcofrontella* and its varieties. The specimen, a male, is unspread, wings of left side wanting, markings of right forewing difficult to discern on account of

oiliness. The following notes taken may assist in the recognition of this species :

Palpi sordid white, rather stout, scarcely reaching to the lower border of the insertion of the antennæ, apex of second joint pale. Head sordid white, with some sheen, smooth scaled, finely speckled with pale fuscous. Basal joint of antennæ sordid white, rather broad, one-half longer than wide, pecten setaceous intermixed with some scales, stalk grayish-fuscous, not excised above the base, simple, moderately robust, neither ciliate nor pubescent. Thorax sordid white, and like the head, speckled with pale fuscous, Forewings elongate—more than in *chalcfrontella*, white, evidently dusted with fuscous, basal part of costa dark purple-brown, at one-fifth, there is a transverse costal spot reaching to the fold, but more distinct on the costa; apparently, there is an outwardly convex, rather wide fascia at one-third, but whether entire or not could not be determined, wider at the dorsal margin and equidistant from the base at both margins, just before the middle and nearer the costal margin is an elongate spot, two smaller dots at end of cell; cilia grayish, speckled with white and fuscous scales, a dark line along the periapical margin but separated from it by a pale line. Anal brush pale ochreous. Underside of body and legs grayish-white, the latter suffused with fuscous; end of tibiæ and tarsal joints paler. Venation not determinable.

The specimen bears Chambers' label, "*Clemensella*; Kentucky, Chambers."

33. **H. irenica** Wlsh.—"Antennæ, female, brownish-gray; basal joint with strong pecten, paler. Palpi grayish-white, median joint grayish-brown externally nearly to the apex; terminal joint also sprinkled with brownish-gray. Forewings grayish-white, with brown-gray sprinkling, especially on the outer two-thirds of the costa and on the dorsal and apical portions of the wing; a patch of this at the base of the costa, mixed with some ferruginous scales; a similar patch before the middle of the costa exhibiting more of the ferruginous coloring, which is diffused downward to the fold, touching the inner extremity of an elongate-ovate blackish-brown discal spot, beyond which, at the end of the cell, are two smaller spots of the same color, which is also faintly reproduced in a diffused patch or cloud on the dorsum beneath them and on the costa beyond them; cilia hoary grayish. Hindwings shining, yellowish-gray, with pale brownish-ochreous cilia. Abdomen whitish-gray. Legs whitish, shaded with brownish-gray on their outer sides Alar expanse 20 mm."

*Type*.—Female, Mus. Walsingham.

*Hab*.—Mendocino County, mouth of Albion River, California, May 30–31, 1871; British Columbia, New Westminster, June 13, 1900."

The author makes no further comment. A specimen in my possession from the Hulst collection and received from Prof. John B. Smith, agrees fairly well with the above description. Locality, Washington territory.

34. **H. illibella** n. sp. (Plate III, fig. 30.)—Palpi of moderate thickness and rather short, scarcely attaining to middle of front, gray, more or less densely overlaid with fuscous scales, especially on second joint, extreme apex of second and terminal joint whitish, the latter short, scarcely one-third the length of the second ( $\sigma$ ). Antennæ moderately thick, gray, basal joint broad and short, pecten of close-set setæ, shaft dusted with fuscous, especially towards the apex. Head and thorax gray, finely speckled with pale fuscous scales, without lustre. Forewings elongate, of nearly equal width for three-fourths their length, margins approximately straight for the same length and equally narrowed to the apex; ground color gray, more or less densely overlaid with white scales intermixed with fuscous, giving the appearance of gray, the fuscous predominating along the margins, a small dark fuscous spot before the middle and above the fold, an ill-defined spot at two-fifths of costa, two spots at end of cell and above and beneath these, on the respective margins, is an ill-defined nebulous spot, a series of dark dashes along the base of the cilia, more marked along costal border; cilia gray, speckled with whitish and fuscous scales. Hindwings under 1, evenly narrowed from about the middle to the acute apex, pale gray, dusted with pale fuscous; cilia gray. Abdomen fuscous, segments edged with grayish-white scales posteriorly; anal bush ochreous-fuscous. Underside of body and legs grayish-white, more or less speckled or suffused with fuscous. Expanse 12.0–13.0 mm., 0.48–0.52 inch.

*Hab.*—Md. (Frederick). Three males in my collection.

An obscurely marked form. In one specimen the spot in middle of forewing is wanting, in another the costal spot at two-fifths. The terminal joint of palpi is strikingly short. Veins 3+4 of hindwing long stemmed, 5 out of stem near its base.

35. **H. crescentella** n. sp. (Plate IV, fig. 31.)—Palpi of moderate length, terminal joint slender, acutely pointed, two-thirds the length of the second joint, white, sprinkled within and without with dark brown scales, leaving a rather broad ring at the apex of the second and of terminal joint white. Antennæ brownish-gray, paler beneath, basal joint nearly twice as long as wide, sordid white with long grayish pecten. Head and thorax sordid white. Forewings moderately elongate, acutely pointed, costa nearly straight from the base

for three-fourths its length. Ground color white, without lustre, speckled with dark brown scales and dots, at a little more than one-third from the base is a well-marked, outwardly curved dark fascia, bordered within by an about equally wide fascia of the ground color, within the latter the basal space is dotted with brown, an ill-defined spot at base of costa, immediately beyond the dark fascia and a trifle nearer the costa, is a dark spot, and at the end of the cell two others, between the former and the upper spot at the end of cell is a series of four or five more or less connected dots, forming a more or less interrupted curved line, with the convexity towards the costa; about the middle of the costa is a patch consisting of small dots and a similar though smaller and less distinct patch, a little beyond the end of the cell, a series of small dots at the base of the cilia, the latter gray, speckled with white and dark scales. Hindwings as wide as the forewings, costa scarcely retuse; gray, dusted with fuscous; cilia gray, a trifle over 1. Abdomen whitish, lightly dusted with fuscous. Under-side of body and legs white, anterior and middle legs suffused with fuscous. Expanse 14.0 mm., 0.56 inch.

*Hab.*—Utah (Stockton).

A female specimen, collected by Mr. Tom Spalding in my collection. Vein 5 of hindwing connate with stem of 3 + 4.

Var. *annulipes*.

A specimen, female, from the Baboyquivaria Mountains, Ariz., in my collection, measuring 13.0 mm. agrees well with the type in markings, but differs by the hindwings having a brassy sheen and the cilia are more tinged with yellow. Legs white, tibiae with two broad fuscous bands, leaving the ends and a band in the middle white, apices of tarsal joints conspicuously white, rest fuscous. Vein 5 of left hindwing connate with stem of 3 + 4, distinctly from the stem in right hindwing.

36. *H. spretella* n. sp. (Plate IV, fig. 32.)—Palpi, head, basal joint of antennae and thorax grayish-white, tinged with ochreous. Palpi reaching to upper margin of the antennal insertion, terminal joint two-thirds the length of the second; speckled with fuscous scales, more densely without. Antennae grayish-fuscous, not excised above the base, finely denticulate and shortly ciliate beneath in the male, a little more robust than in the female; basal joint rather small, pecten gray. Thorax and patagia suffused with fuscous anteriorly. Forewings rather elongate, costal margin approximately straight from base to apical fourth; ground color white, rather densely speckled with dark brown from basal third outwardly, the dark scales most pro-

nounced in costal part of wing, and least along the middle of the disc, on the costa near the base is a dark fuscous patch, from which extend a transverse spot to the fold, the remainder of the basal space is thinly speckled with pale fuscous, at one-third is a nearly straight fuscous fascia, rather broad but not sharply defined externally, within this fascia and on the fold is a darker spot, another more distinct spot immediately beyond the fascia and a little nearer the costa, another elongate spot beyond the middle and a little above the fold, at the end of the cell are two somewhat coalescent spots, from each of these a dark shade extends to respectively the costal and dorsal margins; cilia grayish-white. Hindwings about as wide as the forewings, acutely pointed, costa scarcely retuse outwardly, whitish, lightly dusted with fuscous, with some lustre; cilia a trifle over 1, pale gray with pale yellowish sheen. Abdomen grayish-fuscous, anal tuft ochreous. Underside of body silvery white, shining, abdomen suffused with fuscous. Legs white, anterior thickly suffused with fuscous, middle and posterior, especially the latter, much less so, oblique spot and apices of posterior tibiae and apices of tarsal joints pale. Expanse 16.0-21.0 mm., 0.64-0.84 inch.

*Hab.*—Ariz. (Williams, Phoenix).

Four specimens, two males and two females, are before me. Three of these in the Nat. Mus. Coll. from Williams, Ariz., measure 16.0 mm., or a trifle over, while the fourth, a female from Phoenix, in my collection, measures 21.0 mm., but aside from its larger size and more pronounced markings, it does not differ. The transverse costal spot near the base and the two distinct spots in the mesial space, distinguish this species from any other. Stem of veins 3+4 of hindwing about half the length of vein 4, 5 connate with stem. A specimen from Vowell's Mill, La., and another from Alabama (without locality) in my collection, may belong here; their markings, however, are indistinct, and do not permit a definite opinion. Two other specimens from Williams, Ariz., also in the Nat. Mus. Coll. measure only 14.0 mm., and do not have the basal space paler as in the typical form.

37. **H. ursella** Wlsh.—“Antennæ with pecten, but without notch; pale brownish-ochreous. Palpi brownish-gray externally, dirty whitish on their inner sides. Head and thorax bone-whitish, the latter tinged brownish-gray anteriorly. Forewings bone-white, much suffused and sprinkled with brownish-gray, overclouding the costa as well as the



apical area beyond the cell, but less profusely along the dorsum and scarcely at all along the disc; a faintly indicated narrow brownish-gray fascia seems to leave the costa at one-third from the base, and, after interruption on the cell, is bent inward from the fold to the dorsum at one-fourth; this is somewhat accentuated in the fold, where it probably absorbs a small darker spot, corresponding to, but preceding a larger brownish-fusca discal spot about the middle of the wing; two smaller darker spots are indicated at the end of the cell, and one at the lower edge of the cell equidistant between the inner and outer discal spots; the apex is slightly mottled, the cilia pale brownish-gray. Alar expanse, 18 mm. Hindwings pale gray, with a slight brownish tinge; cilia pale brownish-ochreous. Abdomen grayish. Legs pale brownish-ochreous."

*Type*.—Male, in the author's collection.

*Hab*.—Shasta County, Bear Creek, California, July 27–28, 1871.

The above is Lord Walsingham's description, from this and his reference to *inconspicua* we may infer that the general effect and appearance of this species is rather grayish-fusca than sordid white.

38. **H. punctiferella** Clem. (Plate IV, fig. 33).—Labial palpi yellowish white, dusted externally with fuscous, apex of second and of terminal joint white, the latter two-thirds the length of the former. Head sordid white with yellowish tinge. Antennæ yellowish-brown, not excised above the basal joint ( $\sigma^7$ ), the latter one-half longer than wide, pecten grayish-white. Thorax sordid gray, with a yellowish-brown tinge. Forewings rather narrow, costa approximately straight, apex acute; ground color whitish, dusted with brown, the dusting more condensed along the margins, especially the costal and in apical portion of the wing, a subquadrate dark brown costal spot at one-third, opposite this but a trifle nearer the base, is a larger, irregularly triangular patch, the apex of which extends beyond the fold, but does not reach the costal spot, within the dorsal spot is a plical dash, and behind it and obliquely above is a distinct, longitudinal spot before the middle, two distinct spots at end of cell and midway between the lower one of these and the discal spot is a distinct, longitudinal spot on the posterior median vein, a row of spots along the apical margin; cilia gray with some scattered white and brown scales. Hindwings a trifle under 1, costa scarcely retuse, apex pointed; gray, lightly dusted with fuscous, with yellowish tinge; cilia concolorous with pale basal line. Abdomen above, underside of body and legs grayish, dusted with fuscous, anal bush pale ochreous. Expanse 11.0–13.0 mm.

*Hab*.—Penna. (Hazleton); (Nicholson), collected by E.

Lister. Two specimens in my collection compared with the type in fairly good condition in the Academy of Natural Sciences, Philadelphia.

Dr. Clemens' description of this species is defective, as he does not mention the marginal spots at one-third of the wing length. He described it as a *Gelechia*. Vein 5 of hindwings connate with or narrowly separated at its origin from the stem of 3 + 4.

Var. (**Hypatima**) **subsenella**. Zell. (Plate IV, fig. 33a.)

The type, a male, is in the Cambridge Museum. It has Zeller's green label, 1716, Dallas, Tex., and name in his handwriting. Consider this form a variety of the above and from which it differs by the darker color of head, palpi and antennæ, a transverse costal spot very near the base, and the dorsal spot not extending beyond the fold. The last character may not be a constant one, and also the fact that the type specimen is minus the wings on the left side, a number of specimens in my collection, all taken in my locality agree with this form, except that in all of them the dorsal spot extends beyond the fold, thus agreeing with *punctiferella*, from which, however, it differs by its general darker coloration, the dark costal spot near the base, and its somewhat larger size—13.0–14.0 mm.—one out of a series of ten, sent to Lord Walsingham for determination, was returned as *Hypatima texanella* Wlsh. In five of these specimens vein 5 of forewing is distinctly free, in the others apparently connate with stem of 3 + 4.

Var. **texanella** Wlsh. (Plate IV, fig. 33b.)

Very close to the preceding variety, from which it differs by its somewhat lighter color and a tendency of the plical dash at one-third and the spot on the posterior margin of the cell to become obliterated. The fascia at one-third is less angulate. The author, in fact, does not mention these characters in the description, but in one wing—slide specimen—from a cotype in the National Museum Collection, which is before me, both are present, though not marked. Expanse 14.0–16.0 mm., 0.56–0.64 inch.

*Hab.*—Texas (Bosque County, Fedora); Utah (Stockton). Tom Spalding collector; Colorado, Alabama.

In the hindwing of the above-mentioned slide specimen, vein 5 is distinctly free, in others connate with stem of 3 + 4.

39. **H. zelleriella** n. sp. (Plate IV, fig. 34.)

In "Annerkung 2" to his description of *Hypatima subsenella*, Zeller refers to two male specimens, which he compares with and doubtfully refers to the last named species. I have examined these specimens carefully, and entertain no doubt of their being distinct.

Palpi, head, basal joint of antennæ and thorax bony white. Third joint of palpi two-thirds the length of the second joint, the latter roughened with scales beneath, dusted with fuscous. Basal joint of antennæ scarcely longer than wide, pecten gray. Vertex and anterior part of thorax dusted with fuscous. Form of forewings like those of *subsenella*, ground color a sordid white with a yellowish tint, dusted lightly with fuscous; basal space limited externally by an interrupted, irregularly angulated line, a dark nebulous spot at base of costa, a dark line on the fold before and another crossing the angulated line, an ill-defined spot on both the costal and dorsal margins at one-third, first discal spot just beyond angle of line, somewhat elongated, two distinct spots at end of cell, and another elongated spot on the posterior margin of cell, a distinct and rather conspicuous patch on middle of costa, a nebulous spot on both margins just beyond the cell, and a row of dots along base of cilia; cilia gray, speckled with white and fuscous scales and two or three paler lines. Hindwings not as wide as forewings, costa retuse outer two-fifths, pointed, grayish-white, dusted with fuscous; cilia over 1; veins 3 + 4 stemmed, 5 free (in one wing vein 5 appears to be connate with stem 3 + 4). Expanse 14.0 mm., 0.56 inch.

*Hab.*—Texas (Dallas).

Types in Cambridge Museum. I name this species after the late Prof. P. C. Zeller in consideration of his valuable contributions to our knowledge of North American Microlepidoptera. The specimen which he refers under "Amerkung 1" to his *subsenella* belongs to *Valentinia*. In his reference—Amerkung 2—Zeller does not mention the spot on the middle of the costa, but mentions a dark line or streak near the base and within the dorsal margin, this character I could not discern in either of the specimens.

Var. *annectella*. (Plate IV, fig. 34a.)

Three specimens in my collection agree with the above very closely, except that they lack the conspicuous spot in middle of costa, and instead of the dash on the fold in basal space, a short dash above and beneath,

*Hab.*—Iowa (Iowa City), La. (Vowell's Mill).

40. *H. vestaliella* n. sp. (Plate IV, fig. 35.)—Palpi long, white, the second joint rather thick, tinged with yellowish above, the third joint two-thirds the length of the former, finely speckled with fuscous. Basal joint of antennæ and pecten white, former nearly twice as long as wide, shaft not excised above the base, pale yellowish-fuscous. Head white, face yellowish. Thorax white, with some lustre. Forewings narrow, pointed, costa approximately straight, white, very lightly and inconspicuously dusted with pale brown here and there, scarcely clouding the ground color; markings dark brown, as follows: basal part of extreme costa, a subcostal spot near the base, a short streak in basal part of wing immediately beneath the fold, a streak in the fold beginning at one-third, an elongate spot obliquely above (first discal), a small spot at lower margin of cell at three-fifths of wing-length, two spots at end of cell, a strongly angulated line in apical part of wing, commencing in a nebulous spot within the costal margin and a little beyond the cell and ending in a similar spot within the dorsal margin, a row of dots along periapical margin; at one-third of the winglength is a diffused, ill-defined costal and dorsal spot; cilia gray, sprinkled with white scales. Underside fuscous. Hindwings about as wide as the forewings, rather acutely pointed, costa slightly retuse in outer half; grayish-white, very slightly dusted with fuscous; cilia over 1, pale gray, yellowish towards the base. Abdomen above and beneath white, anterior portion of upper segments brown, anal bush yellowish-white. Underside of thorax and legs silvery white, tinged with reddish fuscous. Expanse 12.0–14.0 mm., 0.48–0.56 inch.

*Hab.*—Md. (Plummer's Island, June and July); Penna. (Hazleton, July); Mass. (Cohasset, July).

Four specimens from the Nat. Mus. Coll. and two in my own are before me. Conspicuous by its white color; markings variable in extent. In the Massachusetts specimen (Nat. Mus.) the marginal spots at one-third are pronounced, coalesce and form a fascia, while in others scarcely a trace of these spots is in evidence. A specimen from Brownsville, Tex., in the Nat. Mus. Coll. while seemingly agreeing in coloration, has decidedly narrower hindwings. Vein 5 of

hindwing arises from, is connate with or free from stem of 3 + 4.

Closely related to *punctiferella*, from which it differs by its rather conspicuous white color, narrower forewings and the black streak in basal space.

41. **H. tartarella** n. sp. (Plate IV, fig. 36.)—Labial palpi pale yellowish-white, dusted with dark fuscous externally, especially the terminal joint, leaving the base of the latter pale, innerside thinly dusted, second reaching to upper edge of antennal insertion, somewhat thickened towards the apex and slightly roughened along lower edge with fuscous scales, terminal joint pointed, two-thirds as long as the preceding joint. Head pale yellowish-white, somewhat rough scaled, more or less suffused with gray. Basal joint of antennæ yellowish-white or grayish, of moderate length and width, pecten of closeset bristly hairs, shaft grayish-fuscous, not excised above the base. Thorax grayish-white, speckled with pale fuscous. Forewings narrow, pointed, ground color white, overlaid with grayish-fuscous as to almost entirely conceal the ground color except in basal third, the latter limited externally by an acutely angulated line, the angle being nearer the costal margin; this space is less suffused with grayish-fuscous, the latter more marked along the margins and extreme base, and a less distinct patch in the middle along the fold, ending before angle of fascia in a more or less distinct spot. A dark semi-oval spot at costal end of the angulated line, and an ill-defined one at the dorsal end of same; just beyond the summit of the angulated line is a strongly marked dark and somewhat elongated spot, two equally well-marked spots at end of cell, and before the lower one of these, on the posterior margin of the cell, is a more or less elongated, very distinct spot, of the remainder of the wing, the darker coloring predominates more along the margins and in apical part of wing; cilia grayish-white, speckled in basal half with grayish-white scales. Hindwings nearly 1, costa scarcely retuse, dorsal margin feebly curved at tornus, not very acutely pointed at apex, grayish-white, suffused with pale fuscous; cilia grayish, over 1. Abdomen grayish-fuscous, anal bush gray. Underside of body and legs grayish-white, the latter more or less densely suffused with dark fuscous. Expanse 13.0–15.0 mm., 0.52–0.06 inch.

*Hab.*—Md. (Plummer's Island).

Nine specimens in the Nat. Mus. Coll., all collected by Mr. A. Busck at light. A sombre looking insect, markings vary variable in extent and intensity. Does not closely resemble any other form.

42. **H. pusilla** n. sp. (Plate IV, fig. 37.)—Palpi rather robust, scarcely reaching to the lower margin of the antennal insertion, fuscous, the second joint at apex and within paler, thickened towards the apex and somewhat roughened with scales beneath. Head grayish-fuscous, front smooth with a greenish sheen. Antennæ stout, light fuscous, with short pubescens beneath, not excised above basal joint, the latter grayish-ochreous, but a trifle longer than wide, pecten gray. Thorax grayish-fuscous, with some lustre, somewhat darker anteriorly. Forewings elongate, pointed; ground color gray with a faint ochreous tint, dusted with fuscous, costal part of base and extreme costal margin for one-half its length dark fuscous, a fuscous fascia at one-third, rather broad, curved and about equidistant from the base at both margins, first distal spot at outer margin of fascia and midway between costa and fold, distinct, a well-marked elongate spot on the posterior margin of the cell, spots at end of cell confluent, costal and apical portion of wing more densely dusted, especially so above and a little beyond the end of the cell, where it forms a nebulous patch, an elongate spot on the end of the veins, along the periapical margin; cilia gray, darker towards the base. Underside fuscous. Hindwings under 1, strongly narrowed towards the apex, latter not very acute; grayish-fuscous; costa nearly straight, scarcely retuse; cilia over 1, gray, yellowish towards the base. Abdomen grayish-fuscous, anal bush gray. Underside of body grayish-white with yellowish tint, some lustre. Legs yellowish-white, suffused with fuscous, median spot and apex of tibiæ and apices of tarsal joints paler. Expanse 10.0 mm., 0.4 inch.

*Hab.*—Texas (Brownsville).

A male specimen in my collection received some years ago from the late Prof. F. H. Snow. Much smaller than any of its near allies, with palpi and antennæ (male) decidedly robust. In size it comes near to *H. nana*, from the same locality, but is an altogether different species.

43. **H. rufopunctella** n. sp.—Palpi (wanting). Head, basal portion of antennæ, thorax and forewings white with some lustre. Basal joint of antennæ rather slender, twice as long as wide, pecten setaceous, pale gray, shaft pale fuscous gray with faint annulations, very slender (female). Forewings rather narrow, costa very slightly convex from the base, apex acutely pointed, very lightly dusted with ferruginous scales, a little more evident along the costa and in apical part of wing, an inconspicuous patch of such scales on the fold very close to the base, a short line on the fold at one-third, a rather conspicuous spot before the middle (first discal) and a little nearer the costa, two spots at end of cell which are connected by a transverse line, before the lower of these, on the posterior margin of cell is another less distinct spot; cilia whitish. Hindwings a little narrower than the



forewings, acutely pointed, costa not retuse, pale grayish-white with lustre, lightly dusted with pale fuscous externally. Abdomen above rufous, segments fringed with white scales. Underside of body silvery gray. Legs grayish-white, very lightly touched with reddish-brown. Expanse 16.5 mm., 0.66 inch.

*Hab.*—Col. (Denver), Oslar.

A single female specimen in my collection. Easily recognized by the white color of the insect and the rusty-red markings of the forewings and the same color of the abdomen above. Veins 3 + 4 of hindwing long stemmed, 5 from middle of stem.

44. **H. melonostriatella** n. sp. (Plate IV, fig. 38.)—Palpi somewhat robust, of moderate length, sordid white, dusted with fuscous. Head, basal joint of antennæ and thorax white, speckled with pale brown scales. Basal joint of antennæ one-half longer than wide, pecten long, of closeset whitish setæ; shaft grayish-fuscous, shortly ciliate and denticulate beneath not excised above base (male). Forewings somewhat elongate, pointed, ground color whitish, dusted with pale reddish-brown; the dusting more marked along the margins, and especially so in apical part of wing, where it is intermixed with fuscous; a spot at extreme base of costa, costal margin for about one-third its length, a streak on basal portion of anterior median vein, extending somewhat along vein 11, a somewhat elongated spot before the middle and two spots at end of cell, of which the upper one is longer, dark blackish-brown; cilia pale gray, speckled with pale reddish-brown and whitish scales, with two or three pale lines. Costo-basal portion of underside of wing infusate. Hindwings a trifle narrower than the forewings, costa retuse beyond one-third, apex rather acute, grayish-white, lightly touched with pale brown, especially along the margins; cilia a little over 1, pale gray with pale basal line. Basal portion of abdomen above ferruginous, remaining segments of same color, fringed with sordid white scales; anal bush sordid white. Underside of thorax silvery white, abdomen pale yellowish-white. Legs white, dusted with brown, the latter color arranged in undulating transverse lines on the anterior and middle femora, hind legs more grayish-white, hairs of tibiæ long. Expanse 14.5 mm., 0.58 inch.

*Hab.*—Pa. (Hazleton); Conn. (East River), Chas. E. Ely collector.

Seven specimens, all males, in my collection. Two specimens in my collection from Frederick, Md.—not in very good condition—probably belong here, but the streak on the anterior median vein is scarcely noticeable, and there is a black dot on the fold at one-third. In five of the hindwings examined vein 5 is distinctly free, while it is connate with

the stem of  $3 + 4$  in the remaining the conditions varying at times in the same specimen. From *H. gilbociliella* Clem., with which this species might be confounded, it is distinguished aside from structural differences of the male antennæ, by the dark subcostal streak near the base.

45. **H. interpunctella** n. sp. (Plate IV, fig. 39.)—Palpi slender, especially the terminal joint, the latter two-thirds (male) or three-fourths (female) the length of the second; white, dusted, especially the second joint, except at apex, with blackish scales. Head white, smooth scaled, with some lustre. Basal joint of antennæ white, nearly twice as long as wide, pecten setaceous, stalk slender, not excised above the base in the male, equal in both sexes, pale grayish-brown. Thorax white, smooth, lustrous. Forewings narrow, acutely pointed, costa approximately straight from the base for three-fourths its length, white, dusted with pale brown, more so in costal and apical portions of wing, this dusting does not conceal the ground color, no distinct markings, except a row of blackish dots, commencing about the middle of wing length, immediately above the anterior median vein and extending along vein 10, towards, but not attaining the costal margin, basal half of extreme costal margin fuscous, an indistinct elongate spot before the middle and two spots at end of cell, aside from these are some scattered blackish dots; cilia grayish with scattered white scales, Hindwings as wide as the forewings, costa nearly straight, but little depressed to the acute apex; pale gray, lightly dusted with pale fuscous; cilia gray, a little over 1. Abdomen above, underside of body and legs silvery white with lustre, the legs very lightly dusted with fuscous; anal bush white. Expanse 14.0 mm., 0.56 inch.

*Hab.*—Utah (Stockton), Tom Spalding collector.

Two males and one female in my collection, obscurely marked, except the row of dots above the anterior median vein, which appear to be constant, though variable in extent and distinctness. Veins  $3 + 4$  of hindwings short stemmed, vein 5 free, except in one hindwing, where it is connate with stem of  $3 + 4$ .

### **EUBOLEPIA** gen. n.

Type *anomalella*.

Palpi very long, slender, recurved, the terminal joint about three-fourths the length of the second, front fringed each side with pecten-like hairs; antennæ (♀) slender. Forewings moderately wide, widest near the base, gradually narrowed to the not very acute apex; a transverse ridge of raised scales near the base, and a tuft of similar scales before the middle; twelve veins,  $7 + 8$  long stemmed, remaining

veins free. Hindwings as wide as the forewings, costa scarcely retuse, rather obtusely pointed; cilia scarcely 1; eight veins, 3 + 4 stemmed, 5 out of stem of 3 + 4 near its base. Brush of posterior tibiæ not strongly marked.

Differs from *Holcocera* in the presence of scale ridge and tuft on the forewings, and the front fringed each side with hair-like scales, two characters not observed in any other genus of the family known to me. The type is a female. The male in all probability, when discovered, will have the antennæ excised above the basal joint. This latter character, together with the scale ridges of the forewing, would show a certain analogy to certain Phycitid genera. One species only.

1. *E. anomalella* n. sp. (Plate IV, fig. 40, 40a.)—Palpi light gray, speckled with brown, especially the second joint externally. Head smooth scaled, except posterior edge of occiput, which is somewhat rough haired, scales of front and vertex about equally mixed brown and pale gray, sides of front fringed with close-set pecten-like hairs of a grayish color. Antennæ fuscous, basal joint nearly twice as long as wide, pecten long, gray. Thorax fuscous-brown, intermixed with gray scales posteriorly. Ground color of forewings whitish, sprinkled with dark brown scales; extreme base of costa and a transverse dorsal spot very close to the base, blackish brown, at less than one-sixth the wing length is a strongly marked transverse ridge of dark brown scales with an æneous lustre, at about one-third is an oblique costal streak, slightly convex outwardly, which reaches the fold, where it joins a less distinct dorsal spot, just above the fold and on the streak is a tuft of dark brown scales with æneous lustre; beyond the fascia or streak the dark dusting is more pronounced, especially in the costal portion, two dark spots at end of cell, the lower one of these is a trifle nearer the base. Two obscure longitudinal streaks in median space, and an acutely angulated line in apical portion of wing, a row of irregular dots along base of cilia. Cilia gray, with about three pale lines, one near the middle, one near and the other along the outer margin. Underside grayish-fuscous. Hindwings gray, dusted with fuscous; cilia gray, with an obscure darker line before the middle. Underside pale grayish-fuscous. Abdomen grayish-brown, segments edged with white scales. Underside of body pale yellowish-white with some lustre. Ovipositor not exerted. Legs silvery white, the anterior rather densely dusted with fuscous, especially within, tibiæ at both ends and median fascia white, hind legs less densely dusted, except tarsi, leaving the apices of joints paler. Expanse 19.0 mm., 0.76 inch.

*Hab.*—Arizona (Pinal Mt.).

The type, a female, in the Nat. Mus. Coll. This peculiar species could not be mistaken for any other of this family.

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     " var. *annulipes*.
36. *spretella* n. sp.
37. *ursella* Wlsh., Proc. U. S. Nat. Mus. xxxiii, 206, 1907.
38. *punctiferella* Clem.—Gelechia—Proc. Ent. Soc. Phil. ii, 238,  
     1863; Stainton, Tin. No. Am. 222, 1872.  
     " var. *subsenella* Zell., Verh. zool-bot. Ges. Wien. xxiii, 302,  
     1873.  
     " var. *texanella* Wlsh., Proc. U. S. Nat. Mus. xxxiii, 211, 1907.
39. *zelleriella* n. sp.
40. *vestaliella* n. sp.
41. *tartarella* n. sp.
42. *pusilla* n. sp.
43. *rufopunctella* n. sp.
44. *melanostriatella* n. sp.
45. *interpunctella* n. sp.

### EUBOLEPIA gen. n.

1. *anomalella* n. sp.

### EXPLANATION OF PLATES.

#### PLATE I.

1. *Blastobasis phycidella*, venation of forewing.
- 1a.     "             "             venation of hindwing.
2.     "             *hulstella*, forewing.
3.     "             *yuccæcolella*, forewing.
4.     "             *plummerella*, forewing.
5.     "             *sagitella*, forewing.
6.     "             *distinctella*, forewing.
7. *Zenodochium citricolella*, forewing.
- 7a.    "             "             head, showing the conchyloidal shield of  
                                     basal joint of antenna.



